Magelis iDisplay 15”

Keyboard and Touch
User Manual

10/2008

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Schneider Electric

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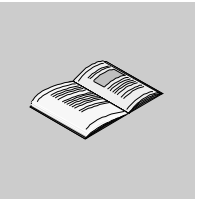

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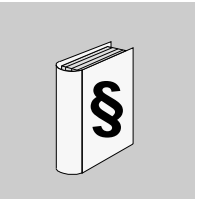
Safety Information



Important Information

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **can result in** death or serious injury.

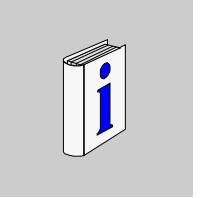
⚠ CAUTION
CAUTION indicates a potentially hazardous situation which, if not avoided, **can result in** minor or moderate injury.

CAUTION
CAUTION, used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, **can result in** equipment damage.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

About the Book



At a Glance

Document Scope

This manual describes the configuration and usage of the Magelis iDisplay 15’’ keyboard.

This External Display is designed to operate in an industrial environment and features the very latest technologies.

The Magelis iDisplay 15’’ keyboard is an External LCD Display Monitor.

The reference number of the product is:

MPCNB50NAN00N
- 100...240 Vac
- 15’’ XGA screen
- 1024 x 768 pixels

Validity Note

General

The present documentation is intended for qualified technical personnel responsible for the implementation, operation and maintenance of the products described. It contains the information necessary for the proper use of the products. However, those who wish to make more "advanced" use of our products may find it necessary to consult our nearest distributor in order to obtain additional information.

The contents of this documentation are not contractual and in no way constitute an extension to, or restriction of, the contractual warranty clauses.

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⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Unplug the power cable from both the iDisplay and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the iDisplay 15'' keyboard. This unit is designed to use 100...240 Vac input.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a iDisplay 15'' keyboard device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Substitution of components may impair suitability for Class I, Division 2.
- Do not connect or disconnect any cable or wire while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in Control Drawing of the USB outlet (See *Control Drawing of the USB outlet on the Magelis iDisplay 15'' keyboard, page 87*).
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

LOSS OF CONTROL

- The designer of any control scheme must consider the potential failure modes of control paths and, for certain critical control functions, provide a means to achieve a safe state during and after a path failure. Examples of critical control functions are emergency stop and overtravel stop.
- Separate or redundant control paths must be provided for critical control functions.
- System control paths may include communication links. Consideration must be given to the implications of unanticipated transmission delays or failures of the link. *[1]
- Each implementation of a Magelis iDisplay must be individually and thoroughly tested for proper operation before being put into service.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

*[1] For additional information, refer to *NEMA ICS 1.1* (latest edition), *"Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control"*.

User Comments

We welcome your comments about this document. You can reach us by e-mail at techcomm@schneider-electric.com.

General Overview

I

Overview

This part provides an overview of the Magelis iDisplay 15’’ Keyboard.

What's in this Part?

This part contains the following chapters:

Chapter	Chapter Name	Page
1	Important Information	13
2	Physical Overview	25
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4	Keyboard Module	49
5	Dimensions/Installation	57

Important Information

1

General

This chapter describes safety aspects which are specific to the operation of the Magelis iDisplay.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Federal Communications Commission Radio Frequency Interference Statement - For U.S.A.	14
Qualified Personnel	15
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Federal Communications Commission Radio Frequency Interference Statement - For U.S.A.

FCC Radio Interference Information

This equipment has been tested and found to comply with the Federal Communications Commission (FCC) limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause or be subject to interference with radio communications. To minimize the possibility of electromagnetic interference in your application, observe the following two rules:

- Install and operate the iDisplay in such a manner that it does not radiate sufficient electromagnetic energy to cause interference in nearby devices.
- Install and test the iDisplay so that the electromagnetic energy generated by nearby devices does not interfere with the iDisplay's operation.

⚠ WARNING

ELECTROMAGNETIC / RADIO INTERFERENCE

Electromagnetic radiation may disrupt the iDisplay's operations, leading to unintended equipment operation. If electromagnetic interference is detected:

- Increase the distance between the iDisplay and the interfering equipment.
- Reorient the iDisplay and the interfering equipment.
- Reroute power and communication lines to the iDisplay and the interfering equipment.
- Connect the iDisplay and the interfering equipment to different power supplies.
- Always use shielded cables when connecting the iDisplay to a peripheral device or another computer.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Qualified Personnel

General

You must only permit qualified personnel to install, operate, and maintain these products. A qualified person is one who has skills and knowledge related to the construction and operation of this electrical equipment and the installations, and has received training to recognize and avoid the hazards involved. Refer to the most current release of NFPA 70E®, "Standard for Electrical Safety in the Workplace", for electrical training requirements. Examples of qualified personnel may include:

- at the application design level, engineering department personnel who are familiar with automation safety concepts (for example, a design engineer),
- at the equipment implementation level, personnel who are familiar with the installation, connection and commissioning of automation equipment (for example, an installation assembly or cabling engineer, or a commissioning technician),
- at the operation level, personnel who are experienced in the use and control of automation and computing equipment (for example, an operator),
- as far as preventive or corrective maintenance is concerned, personnel trained and qualified in regulating or repairing automatic and computing devices (for example an operating technician, or an after-sales service technician, etc.).

Safety Information for the UK

Earthing and Wiring

⚠ WARNING

UNGROUNDED EQUIPMENT

- This apparatus must be earthed.
- Use a three-pin plug with a standard three-pin power point.
- Use only three-core extension cords.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

IMPROPER WIRING

Wire the equipment as described below:

- Green and Yellow: Earth.
- Blue: Neutral.
- Brown: Live.
- The Green and Yellow wire must be connected to the terminal in the plug marked by the letter E or by the safety earth symbols colored Green, or Green and Yellow.
- The blue wire must be connected to the terminal which is marked by the letter N or colored Black.
- The brown wire must be connected to the terminal which is marked with the letter L or colored Red.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

NOTE: The fact that the equipment operates satisfactorily does not imply that the power point is earthed. If you have any doubt about the effective earthing or wiring of the power point, consult a qualified electrician. Incorrectly wired power cords are a major cause of fatalities.

⚠ WARNING

INCOMPATIBLE POWER SYSTEM

Do not connect this equipment to an isolation transformer power system:

- An isolation transformer system is a system having no reference between live parts and Earth; the exposed conductive parts of the device frame and enclosure are earthed.
- An isolation transformer system is not permitted where the computer is directly connected to public supply systems.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Certifications and Standards

Agency Certifications

Schneider Electric submitted this product for independent testing and qualification by third-party listing agencies. These agencies have certified this product as meeting the following standards.

North America:

- Underwriters Laboratories Inc., UL 508/cUL, Industrial Control Equipment
- Underwriters Laboratories Inc., UL 1604/cUL, Electrical Equipment for Use in Class I, Division 2 Hazardous (Classified) Locations

Compliance Standards

Schneider Electric tested this product for compliance with the following compulsory standards.

North America:

- Federal Communications Commission, FCC Part 15
- Underwriters Laboratories Inc., UL 60950, Information Technology Equipment

Europe: CE

- Directive 2006/95/EC (Low voltage), Directive 2004/108/EC (EMC)
- Programmable Controllers: IEC 61131-2
- EMI: EN55011 (Group 1, Class A) / IEC 61000-3-2, IEC 61000-3-3, IEC/EN 61000-6-4
- EMC: EN 61000-6-2

Australia:

- C-Tick N998
- Standard AS/NZS CISPR11

Qualification Standards

Schneider Electric voluntarily tested this product to additional standards. The additional tests performed, and the standards under which the tests were conducted, are specifically identified in *Environmental Characteristics, page 45*.

Hazardous Substances

This product is compliant with:

- WEEE, Directive 2002/96/EC
- RoHS, Directive 2002/95/EC
- RoHS China, Standard SJ/T 11363-2006

European (CE) Compliance

CE Compliance Note

The products described in this manual comply with the European Directives concerning Electromagnetic Compatibility and Low Voltage (CE marking) when used as specified in the relevant documentation, in applications for which they are specifically intended, and in connection with approved third-party products.

Hazardous Location Installations - For USA and Canada

General

Schneider Electric designed the iDisplay 15'' keyboard with the intention of meeting the requirements of Class 1, Division 2 hazardous location applications. Division 2 locations are those locations where ignitable concentrations of flammable substances are normally confined, prevented by ventilation, or present in an adjacent Class I, Division 1 location, but where an abnormal situation might result in an intermittent exposure to such ignitable concentrations.

While the iDisplay 15'' keyboard is a non-incendiary device under UL 1604, it is not designed for, and should never be used within a Division 1 (normally hazardous) location.

The MPCNB50NAN00N device with appropriate labeling is suitable for use in Class I, Division 2, Groups A, B, C, and D hazardous locations or in non-hazardous locations. Before installing or using your iDisplay 15'' keyboard, confirm that the UL 1604 certification appears on the product labeling.

⚠ DANGER

EXPLOSION HAZARD

- Do not use your iDisplay 15'' keyboard device in hazardous environments or locations other than Class I, Division 2, Groups A, B, C, and D.
- Always confirm that your iDisplay 15'' keyboard device is suitable for use in hazardous locations by checking that the UL 1604 certification appears on the product labeling.
- Do not install any Schneider Electric or OEM components, equipment, or accessories unless these have also been qualified as suitable for use in Class I, Division 2, Groups A, B, C, and D locations.
- Do not attempt to install, operate, modify, maintain, service, or otherwise alter the iDisplay 15'' keyboard except as permitted in this manual. Unpermitted actions may impair the unit's suitability for Class I, Division 2 operation.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a iDisplay 15'' keyboard device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Substitution of components may impair suitability for Class I, Division 2.
- Do not connect or disconnect any cable or wire while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in Control Drawing of the USB outlet (See *Control Drawing of the USB outlet on the Magelis iDisplay 15'' keyboard, page 87*).
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Unplug the power cable from both the iDisplay and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the iDisplay 15'' keyboard. This unit is designed to use 100...240 Vac input.

Failure to follow these instructions will result in death or serious injury.

The product must be properly rated for the location. If the intended location does not presently have a Class, Division and Group rating, then users should consult the appropriate authorities having jurisdiction in order to determine the correct rating for that hazardous location.

In accordance with Federal, State/Provincial, and Local regulations, all hazardous location installations should be inspected prior to use by the appropriate authority having jurisdiction. Only technically qualified personnel should install, service, and inspect these systems.

Power Switch

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Unplug the power cable from both the iDisplay and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the iDisplay 15'' keyboard. This unit is designed to use 100...240 Vac input.

Failure to follow these instructions will result in death or serious injury.

The amount of input power required by systems including a iDisplay 15'' keyboard unit classifies a power switch as an incendiary device because the voltage and current across the make/break device are capable of creating a spark.

Hazardous location regulations require that a power switch rated for ordinary locations may be used if it is located in an area specified as non-hazardous.

However, limits in cable length between the workstation and the power switch may apply. Otherwise the switch must be compliant with Class I, Division 1 requirements (intrinsically safe). These switches are built in a manner that prevents the possibility of a spark when contacts are made or broken.

Use suitable UL listed and/or CSA Certified Class I, Division 1 switches in hazardous locations. These switches are available from a wide number of sources. It is the responsibility of the customer to ensure that the power switch selected for the installation has the correct hazardous locations rating for the location in which it is installed.

Cable Connections

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a iDisplay 15" keyboard device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Substitution of components may impair suitability for Class I, Division 2.
- Do not connect or disconnect any cable or wire while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in Control Drawing of the USB outlet (See *Control Drawing of the USB outlet on the Magelis iDisplay 15" keyboard, page 87*).
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

Failure to follow these instructions will result in death or serious injury.

Division 2 hazardous location regulations require that all cable connections be provided with adequate strain relief and positive interlock. Use only non-incendiary USB devices, since USB connections do not provide adequate strain relief to allow the use of incendiary peripherals (see *Control Drawing of the USB outlet on the Magelis iDisplay 15" keyboard, page 87* for further details). Never connect or disconnect a cable while power is applied at either end of the cable. All communication cables should include a chassis ground shield. This shield should include both copper braid and aluminium foil. The D-sub style connector housing should be a metal conductive type (e.g., molded zinc) and the ground shield braid should be well terminated directly to the connector housing. Do not use a shield drain wire.

The outer diameter of the cable must be suited to the inner diameter of the cable connector strain relief so that a reliable degree of strain relief is maintained. Always secure the D-Sub connectors to the workstation-mating connectors via the two screws located on both sides.

Operation and Maintenance

The iDisplay 15’’ keyboard has been designed for compliance with relevant spark ignition tests. However, please note that the workstation front panel Keyboard switches and mouse pointer are the only make/break components intended to be exercised by the operator in the course of operations in a hazardous location.

⚠ DANGER

EXPLOSION HAZARD

In addition to the other instructions in this manual, observe the following rules when installing the iDisplay 15’’ keyboard unit in a hazardous location:

- Wire the equipment in accordance with the National Electrical Code article 501.4 (B) for Class I, Division 2 hazardous locations.
- Install your iDisplay 15’’ keyboard unit in an enclosure suitable for the specific application. Type 4 or IP 65 enclosures are recommended even when not required by regulations.

Failure to follow these instructions will result in death or serious injury.

Physical Overview

2

Overview

This chapter provides a physical overview of the product.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Main Features	26
Package Contents	28
iDisplay Unit Description	30
Analog RGB and DVI-D Interface Specifications	33
RS-232C and USB Interface Specifications	37

Main Features

Introduction

The iDisplay includes the following features:

- High Quality TFT Color LCD Display
- Easy installation in cabinets and panels
- Panel can be used as a VGA Display
- Easy-to-use Built-In Panel
- USB-HUB Function
- Keyboard and Mouse Pointer

High Quality TFT Color LCD Display

This unit is equipped with a 15.0 inch TFT-type color LCD. Its superior brightness and wide viewing angle, not found in ordinary laptop-type TFT LCDs, widens your scope of applications.

The screen's maximum resolution is 1024 x 768 pixels and can display 16,777,216 colors.

Easy Installation In Users' Cabinets and Panels

The iDisplay's slim and compact design makes installation easy since it was designed specifically for use as an IA (Industrial Automation) or OA (Office Automation) system monitor.

The flat front panel provides protection equivalent to the rigorous IP65 standard. Even without its optional protective cover, the front panel is highly resistant to both water and dust.

Panel can be used as a VGA Display

Since the iDisplay is equipped with an analog RGB interface and a DVI-D Interface, it can be connected to a PC and other similar devices. (The PC's dot clock frequency, however, must be within the standard range for the iDisplay to operate normally.)

Easy-to-use Built-In Touch Panel

iDisplay series built-in touch panel allows touch panel data to be output to a host PC via input/output commands and an RS-232C cable or USB cable.

This is beneficial for systems requiring both touch panel operation and data monitoring.

USB-HUB Function

The iDisplay unit has a USB-HUB function and can connect USB devices to the front USB connector.

Keyboard and Mouse Pointer

This iDisplay has a built-in alphanumeric and functional keyboard. It also has keys that permit the operation of the onscreen mouse pointer. Optionally, a USB keyboard and USB mouse can be plugged into the iDisplay. If such USB devices are used, the built-in keyboard, mouse keys, and touch panel will continue to operate normally.

NOTE: When the keyboard and the mouse pointer are used, it is necessary to use a USB cable, not RS-232C cable.

Package Contents

Introduction

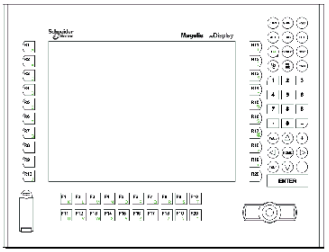
The following items are included in the iDisplay 15” keyboard's package. Before using the iDisplay, please check that all items listed here are present:

- iDisplay Unit (1)
- Installation Gasket (1)
- Installation Fasteners (12: 4x3 set)
- AC Power Cord with Terminal block (EU plug) (1)
- AC Power Cord with Terminal block (USA plug) (1)
- CD ROM (Drivers, User Manual documentation) (1)
- Analog RGB / VGA Cable (1)
- USB Cable Strap (1)
- Instruction Sheet (1)
- Touchscreen Interface USB Cable(1)

This unit has been carefully packed with special attention to quality. However, should you find anything damaged or missing, please contact your local iDisplay distributor immediately.

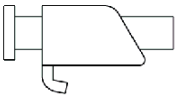
iDisplay 15'' keyboard Package Contents

The following shows the iDisplay 15'' keyboard Package Contents:

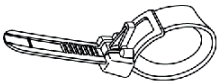


iDisplay Unit

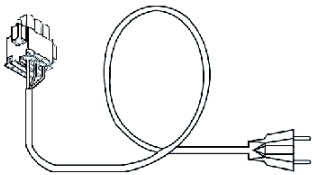
Installation Gasket



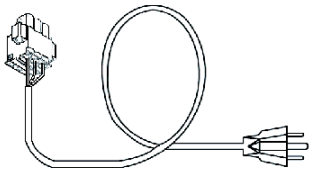
Installation Fasteners



USB Cable Strap

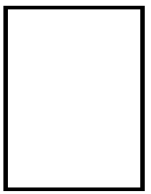


Power Cord (US plug)

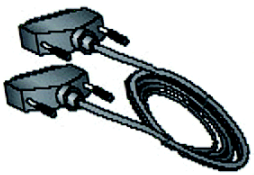


Power Cord (EU plug)

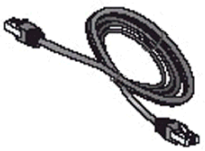
CD-ROM



Instruction Sheet



Analog RGB / VGA Cable



Touchscreen Interface USB Cable

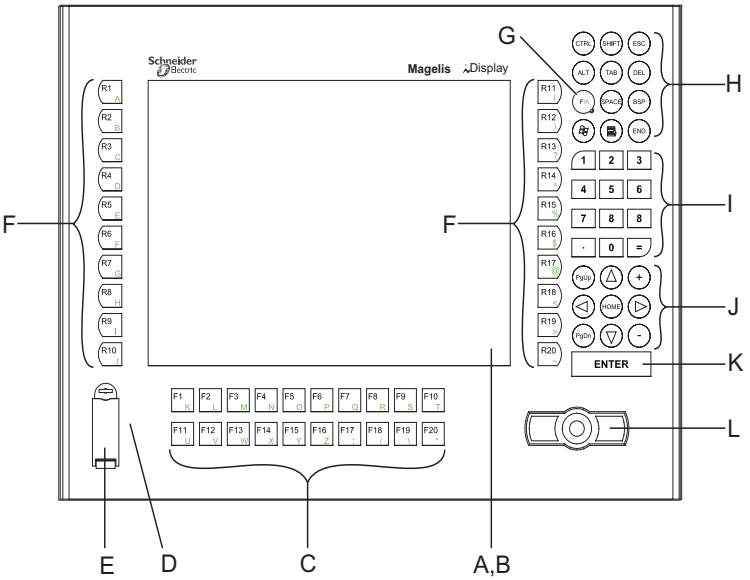
iDisplay Unit Description

Introduction

The following diagrams identify the different parts of the iDisplay unit and describe their functions.

Front View

The following provides a front view of the Magelis iDisplay:



Part	Function
A	Display: displays User created screens.
B	Touch Panel: performs screen change operations and sends data to the host (PC).
C	Function Keys (F1 to F20): used for inputting a character or performing a function.
D	Front LED: indicates the condition of the power supply, a backlight burnout or image signal input. See the next table for the status.
E	Front USB Connector (Type A): connects USB devices.
F	Special Function Keys (R1 to R20): used for inputting a character or performing a special function.
G	Function/Alpha Key: used for switching between character input and function/special function input. Indicates character input when the LED is on.
H	System Keyboard: controls various system operations.
I	Numeric Keyboard: allows input of numeric characters.
J	Cursor Keys.
K	Enter Key.
L	Two Button Mouse Pointer: the pointer moves the cursor and the buttons activate objects and enable data inputs.

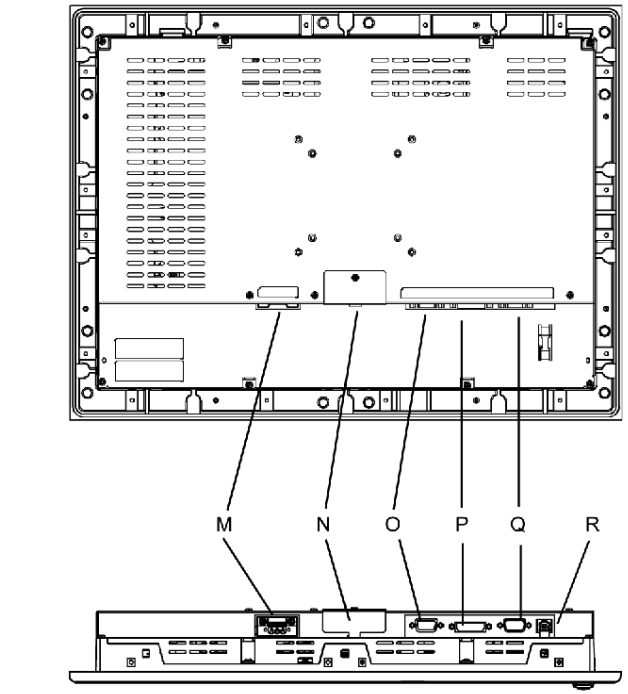
Front LED (D) Status:

LED	OFF	Green	Orange	Green / Red Flash	Orange Flash *1
Panel	Power OFF	Power ON	Power ON	Power ON	Power ON
Backlight	-	Normal	Normal	Burned-out	Burned-out
Input of Image	-	Yes	No	Yes	No

*1 Only while “No Signal” is displayed.

Rear and Bottom Views

The following provides rear and bottom views of the iDisplay:



Part	Function
M	AC Power Connector: provides the input and ground terminals for a power cable.
N	Setting Switch (Dip switch): changes the settings of each operation mode.
O	VGA Interface (analog RGB) Connector: connects analog RGB interface.
P	DVI-D Interface Connector: connects DVI-D interface.
Q	RS-232C Connector: connects RS-232C (serial) interface, sends touch panel data to the host (PC), and receives commands from the host (PC).
R	USB Connector (Type B): connects USB interface, sends touch panel data to the host (PC), and receives commands from the host (PC) or can be used as an upstream port for USB-HUB.

NOTE:

- Connect an up-stream port of USB-HUB (R: USB connector) to the host (PC), in order to use front USB connector (E), keyboard (C, F to K), and mouse pointer (L).
- The keypad operates as a keyboard using US keyboard layout. When inputting text in Alpha mode, make sure that the keyboard layout is set to US language.

Analog RGB and DVI-D Interface Specifications

Analog RGB Interface

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a iDisplay 15" keyboard device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Substitution of components may impair suitability for Class I, Division 2.
- Do not connect or disconnect any cable or wire while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in Control Drawing of the USB outlet (See *Control Drawing of the USB outlet on the Magelis iDisplay 15" keyboard, page 87*).
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION OR EQUIPMENT DISCONNECTION

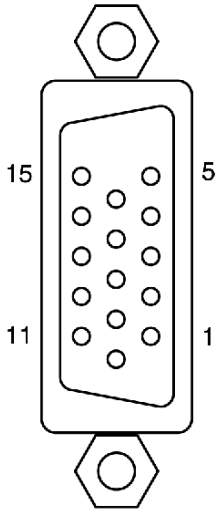
- Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration environment when making this determination.
- Securely attach power, communication, and external accessory cables to the panel or cabinet.
- Use only the Analog RGB cables specified in this document.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

The following table displays the Analog RGB signals:

Input signal type	**Analog RGB**
Input signal characteristics	Image signal: analog RGB Synchronous signal: TTL level, negative true or positive true Scanning type: non-interlaced
OSD (On Screen Display) Settings	• CONTRAST • BRIGHTNESS • H-POS • V-POS • H-SIZE • PHASE • BACKLIGHT • SHARPNESS • DEFAULT (RESET ALL)

The following table displays the Analog RGB Interface pin assignments and signal Names:

Pin Connection	**Pin**	**Signal Name**	**Direction**	**Meaning**
	1	R	Input	R Analog signal
	2	G	Input	G Analog signal
	3	B	Input	B analog signal
	4	Reserved	-	-
	5	Ground	-	Digital grounding
	6	Return R	-	R signal GND
	7	Return G	-	G signal GND
	8	Return B	-	B signal GND
	9	Reserved	-	-
	10	Ground	-	Digital grounding
	11	Reserved	-	-
	12	Display Data Channel DATA	-	Display Data Channel data
	13	H.SYNC	Input	Horizontal synchronous signal
	14	V.SYNC	Input	Vertical synchronous signal
	15	Display Data Channel CLOCK	-	Display Data Channel clock

Connector: mini D-sub 15-pin male

Connector set screw: Inch type (4-40)

Cable: RGB cable included (VGA standard) less than 4.5 m (14.8 ft.)

DVI-D Interface

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a iDisplay 15" keyboard device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Substitution of components may impair suitability for Class I, Division 2.
- Do not connect or disconnect any cable or wire while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in Control Drawing of the USB outlet (See *Control Drawing of the USB outlet on the Magelis iDisplay 15" keyboard, page 87*).
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION OR EQUIPMENT DISCONNECTION

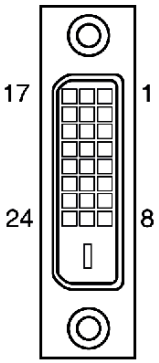
- Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration environment when making this determination.
- Securely attach power, communication, and external accessory cables to the panel or cabinet.
- Use only the DVI-D cables specified in this document.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

The following table displays the DVI-D signals:

Input signal type	DVI-D
OSD (On Screen Display) Settings	• CONTRAST • BRIGHTNESS • BACKLIGHT • SHARPNESS • DEFAULT (RESET ALL)

The following table displays the DVI-D Interface pin assignments and signal names:

Pin Connection	Pin	Signal Name	Pin	Signal Name
	1	TMDS DATA2-	13	-
	2	TMDS DATA2+	14	-
	3	TMDS DATA2/4 SHIELD	15	GND
	4	-	16	Hot Plug Detect
	5	-	17	TMDS DATA0-
	6	DDC Clock	18	TMDS DATA0+
	7	DDC Data	19	TMDS DATA0/5 SHIELD
	8	-	20	-
	9	TMDS DATA1-	21	-
	10	TMDS DATA1+	22	TMDS CLOCK SHIELD
	11	TMDS DATA1/3 SHIELD	23	TMDS CLOCK+
	12	-	24	TMDS CLOCK-

Connector: DVI-D 24-pin male

Connector set screw: Inch type (4-40)

Cable: DVI-D not included

RS-232C and USB Interface Specifications

RS-232C Interface

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a iDisplay 15" keyboard device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Substitution of components may impair suitability for Class I, Division 2.
- Do not connect or disconnect any cable or wire while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in Control Drawing of the USB outlet (See *Control Drawing of the USB outlet on the Magelis iDisplay 15" keyboard, page 87*).
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION OR EQUIPMENT DISCONNECTION

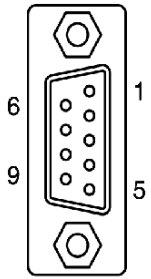
- Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration environment when making this determination.
- Securely attach power, communication, and external accessory cables to the panel or cabinet.
- Use only the RS-232C cables specified in this document.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

The following table displays the RS-232C signals:

Input signal type	RS-232C
Serial Interface	• Baud rate: 9600 bps • Data length: 8 bits • Flow Control: none • Parity: none • Stop bit: 1

The following table displays the RS-232C Interface pin assignments and signal names:

Pin Connection	Pin	Signal Name	Meaning
	1	CD	Carrier Detect (1)
	2	RD	Receive Data (iDisplay->Host)
	3	SD	Send Data (iDisplay<-Host)
	4	DTR	Data Terminal Ready (1)
	5	SG	Signal ground
	6	DSR	Data Set Ready (1)
	7	RS	Request to Send (iDisplay<-Host)
	8	CS	Clear to Send (iDisplay->Host)
	9	-	(Used internally)

(1): CD, DTR, and DSR are connected together inside of the iDisplay.

Connector: D-sub 9-pin male

Connector set screw: Inch type (4-40)

Cable: SIO straight cable not included

NOTE: The signal names used for the serial interface on iDisplay units are designed to match the pin order used on most PC serial interfaces, so that a straight cable can be used to connect the two.

USB Interface (Up-stream port)

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a iDisplay 15" keyboard device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Substitution of components may impair suitability for Class I, Division 2.
- Do not connect or disconnect any cable or wire while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in Control Drawing of the USB outlet (See *Control Drawing of the USB outlet on the Magelis iDisplay 15" keyboard, page 87*).
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION OR EQUIPMENT DISCONNECTION

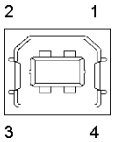
- Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration environment when making this determination.
- Securely attach power, communication, and external accessory cables to the panel or cabinet.
- Use only the USB cables specified in this document.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

The following table displays the USB Interface (Up-stream port):

USB Interface	USB 2.0/1.1 compliant
	Supported speed ● Low (1.5 Mbps) ● Full (12 Mbps) ● Hi (480 Mbps)
	Communication distance (Max): 5 m (16.4 ft)
	The USB Interface is supported by a host PC equipped with Windows® 2000 (SP4) or later, or Windows® XP (SP1) or later.

The following table displays the USB Interface (Up-stream port) pin assignments and signal names:

Pin Connection	Pin	Signal Name	Meaning
	1	USB1-5 Vdc	+5 Vdc
	2	USBD1(-)	USB data (-)
	3	USBD1(+)	USB data (+)
	4	GND	Ground

Connector: USB 2.0/USB 1.1 compliant

Connector set screw: Type B connector

Cable: USB Cable included

Front USB Interface (Down-stream port)

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a iDisplay 15" keyboard device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Substitution of components may impair suitability for Class I, Division 2.
- Do not connect or disconnect any cable or wire while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in Control Drawing of the USB outlet (See *Control Drawing of the USB outlet on the Magelis iDisplay 15" keyboard, page 87*).
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION OR EQUIPMENT DISCONNECTION

- Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration environment when making this determination.
- Securely attach power, communication, and external accessory cables to the panel or cabinet.
- Use only the USB cables specified in this document.

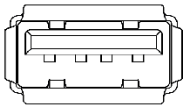
Failure to follow these instructions can result in death, serious injury, or equipment damage.

The following table displays the Front USB Interface (Down-stream port):

USB Interface	USB 2.0/1.1 compliant
	Supported speed ● Low (1.5 Mbps) ● Full (12 Mbps) ● Hi (480 Mbps)
	Power supply voltage: 5 Vdc +/- 5%, Output current: 500 mA (max.)
	Communication distance (Max): 5 m (16.4 ft)
	Connectable USB: 127 *1
	Connection phase: 6 phases *1

*1 Total number of connections available to the host PC. Actual number will depend on how the connections are configured. Two USB-HUBs are built into the iDisplay. The touch panel controller is connected to one, while the keypad and mouse pointer are connected to the other.

The following table displays the Front USB Interface (Down-stream port) pin assignments and signal names:

Pin Connection	Pin	Signal Name	Meaning
	1	USB1-5 Vdc	+5 Vdc
	2	USBD1(-)	USB data (-)
	3	USBD1(+)	USB data (+)
	4	GND	Ground

Connector: USB 2.0/USB 1.1 compliant

Connector set screw: Type A connector

Characteristics

3

Introduction

This chapter lists the iDisplay characteristics.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Structural and Electrical Characteristics	44
Environmental Characteristics	45
Functional Characteristics	46

Structural and Electrical Characteristics

Structural Characteristics

The following table presents the iDisplay Structural characteristics:

Characteristics	Values
Grounding	≤ 100 Ω
Structure	Rating: Equivalent to IP65
External dimensions	W488 mm [19.21 in.] x H367 mm [14.45 in.] x D63 mm [2.48 in.]
Weight	Approx. 8 kg [17.6 lb]
Cooling Method	Natural air circulation

Electrical Characteristics

The following table presents the iDisplay Electrical characteristics:

Characteristics	Values
Rated Voltage	100 Vac to 240 Vac
Allowable Voltage	85 Vac to 264 Vac
Rated Frequency	50 Hz/60 Hz
Rated Frequency Range	40 Hz to 72 Hz
Allowable Voltage Drop	1 Cycle (max.) The interval between voltage dips must be 1 s or more for device performance to remain unaffected
Current Consumption	• ≤1.1 A for 100 Vac (Typically 0.75 A) • 0.7 A for 240 Vac (Typically 0.44 A)
In-Rush Current	60 A (max.)
Voltage Endurance	1500 Vac 20 mA for 1 minute (between charging and FG terminals)
Insulation Resistance	500 Vdc 10 MΩ (min.) (between charging and FG terminals)

Environmental Characteristics

Characteristics

The following table presents the iDisplay's environmental characteristics:

Characteristics	Values
Degree of Protection	IP 65/NEMA 4x12 for the front face of the display panels. IP 20 for the sides and rear face of the display panels, and for the control units as a whole.
Ambient operating temperature	0°C to +50°C (32°F to 122°F)
Storage temperature	-20°C to +60°C (-4°F to 140°F)
Operating and storage humidity	10%RH to 90%RH (relative humidity) (wet bulb temperature: ≤ 39°C (102.2°F) - no condensation
Air purity (Dust)	≤0.1 mg/m^3 (no electrically conductive dust permitted)
Pollution degree	Pollution degree 2
Corrosive gases	Free of corrosive gasses
Atmospheric endurance	800hPa to 1114hPa (≤2,000 meters (6561 feet) above sea level)
Vibration immunity	EN 60068-2-6 compliant ● 5Hz to 9Hz fixed amplitude of 3.5mm, ● 9Hz to 150Hz: constant acceleration of 1 g (9.8m/s²) ● X, Y, Z each direction 10 times (100 minutes)
Shock withstand	EN 60068-2-27 Ea compliant ● 15 g over 11ms ● X, Y, Z each direction 3 times
Noise immunity (via noise simulator)	● Noise voltage: 1,500Vp-p ● Pulse duration: 1µs ● Rise time: 1 ns
Electrostatic discharge immunity	6 kV contact 4 kV air (complies with IEC 61000-4-2 level 3)
Surge resistance	Normal mode: 1 kV/Common Mode: 2 kV (complies with IEC 61000-4-5 level 3)

Functional Characteristics

Introduction

The Functional characteristics include:

- Performance
- Display

Performance

The following table presents the iDisplay performance:

Items		Characteristics
Graphics		XGA (1024 x 768)
Display Unit		15 inch TFT XGA
Touch Panel I/F	Type	Resistive Film (Analog)
	Resolution	1024 x 1024
	Service Life	1,000,000 times or more
	Interface	• Serial Interface (RS-232C) • USB Interface (Type B connector)
External Switch	No. of switches	74
	Switch type	Membrane switch
	Service Life	1,000,000 times or more
	Interface	USB
Video I/F		• Analog RGB Interface • DVI-D Interface

Display

The following table presents the display characteristics:

Characteristics	Values
Size	380 mm (15 in.) (Measured diagonally)
Type	TFT Active Matrix Color LCD
Resolution	1024(H) 768(V) pixels (1pixel=R+G+B color bits)
Dot Pitch	0.297mm (0.01in.) 0.297mm (0.01in.)
Display Colors	16,777,216 colors (R+G+B color 8 bits each)
Brightness Control	Available
Contrast Control	Available (Analog RGB only, when the analog RGB connection is used)
Display Area	H 304.1 mm (11.97 in.) V 228.1 mm (8.98 in.)
Display Modes	640 x 400, 640 x 480, 720 x 400, 800 x 600,1024 x 768
Backlight	CCFL
Backlight Lifetime	(1) 50,000 hours at an ambient temperature of 25ºC (77°F). Backlights can be replaced by returning the unit to Schneider

(1) 50% decreased brightness indicates the backlight needs to be replaced. This value is only for reference; actual backlight lifetime may vary.

Keyboard Module

4

Subject of this Chapter

Keyboard Module (hereafter referred to as "KPM") is a keyboard module included with Front Panel 12’’ / 15’’ KPM.

You can operate these front panels using specific keys and the mouse pointer of the keyboard.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Specific Keys	50
Scan Code List	53
Configuring the Keyboard Layout	55
Mouse Keys	56

Specific Keys

At a Glance

On front panels with a Keyboard Module (KPM), some keys have a specific function. These keys are described below.

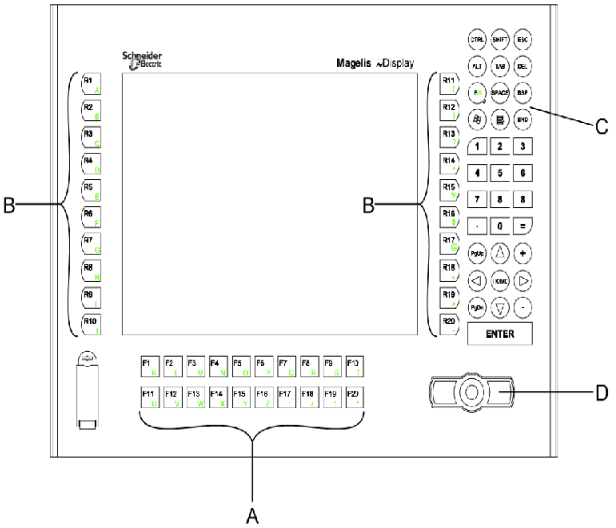
Using KPM dual-function keys, you can input text and activate shortcuts (key codes assigned to each application) in user applications running on iDisplay 15'' keyboard.

NOTE:

- KPM is configured so that it will operate normally with US keyboard layout. When inputting text in Alpha mode, make sure that the keyboard layout is set to US language.
- When inputting another language, configure the keyboard layout to that language. Furthermore, when the pre-installed OS features Multilanguage keyboard layouts, the US layout is set as the default.
- In Windows® Device Manager, KPM is recognized as a USB 2.0 device because the device is being connected via a USB hub.

Dual-function keys

The following figure shows dual-function keys:



A Function Keys: used to input characters or functions
B Special Function Keys: used to input characters or special functions
C Function/Alpha Key: switches between function input and character input
D Mouse Pointer

According to the status of the C key, A and B dual-function keys work in two different input modes:

- **Alpha mode**: QWERTY character input (US layout)
- **Function mode**:
  - keys A: F1 to F20 function input
  - keys B: R1 to R20 special function input

Use the C key to switch between input modes. The LED for the C key indicates the enabled input mode:

- LED off: Function mode
- LED on: Alpha mode

The table below gives the function keys and special function keys output by mode:

Function Keys			**Special Function Keys**		
Key	**Function mode**	**Alpha mode**	**Key**	**Function mode**	**Alpha mode**
F1	F1	K	R1	F21	A
F2	F2	L	R2	F22	B
F3	F3	M	R3	F23	C
F4	F4	N	R4	F24	D
F5	F5	O	R5	F25	E
F6	F6	P	R6	F26	F
F7	F7	Q	R7	F27	G
F8	F8	R	R8	F28	H
F9	F9	S	R9	F29	I
F10	F10	T	R10	F30	J
F11	F11	U	R11	F31	(
F12	F12	V	R12	F32	)
F13	F13	W	R13	F33	?
F14	F14	X	R14	F34	^
F15	F15	Y	R15	F35	%
F16	F16	Z	R16	F36	$
F17	F17	:	R17	F37	@
F18	F18	/	R18	F38	<
F19	F19	\	R19	F39	>
F20	F20	*	R20	F40	~

Key Combinations

By combining dual-function keys, Shift, Ctrl, and Alt, you can create key functions unique to KPM or have the same operations as F1 to F20 and R1 to R20. For details about each key combination and the function output, refer to the following table:

Function Keys			**Special Function Keys**		
Key label	**Function**	**Key combination**	**Key label**	**Function**	**Key combination**
F1	F1	F1	R1	F21	Ctrl + F1
F2	F2	F2	R2	F22	Ctrl + F2
F3	F3	F3	R3	F23	Ctrl + F3
F4	F4	F4	R4	F24	Ctrl + F4
F5	F5	F5	R5	F25	Ctrl + F5
F6	F6	F6	R6	F26	Ctrl + F6
F7	F7	F7	R7	F27	Ctrl + F7
F8	F8	F8	R8	F28	Ctrl + F8
F9	F9	F9	R9	F29	Ctrl + F9
F10	F10	F10	R10	F30	Ctrl + F10
F11	F11	Shift + F1	R11	F31	Alt + F1
F12	F12	Shift + F2	R12	F32	Alt + F2
F13	F13	Shift + F3	R13	F33	Alt + F3
F14	F14	Shift + F4	R14	F34	Alt + F4
F15	F15	Shift + F5	R15	F35	Alt + F5
F16	F16	Shift + F6	R16	F36	Alt + F6
F17	F17	Shift + F7	R17	F37	Alt + F7
F18	F18	Shift + F8	R18	F38	Alt + F8
F19	F19	Shift + F9	R19	F39	Alt + F9
F20	F20	Shift + F10	R20	F40	Alt + F10

Scan Code List

Shortcuts can be used by assigning key codes to each key in user applications. Each key except for the [F/A] key can have key codes assigned to it for an application. Assign the key code based on the task.

Function Keys/Special Function Keys (Function Mode)

In Function mode, each function key and special function key can be assigned to a function from F1 to F40 (Refer to the following table). Assign the key code to the application based on the task.

Function mode			
Function Keys		**Special Function Keys**	
Key Label	**Sequence IN FUNCTION MODE**	**Key Label**	**Sequence IN FUNCTION MODE**
F1/K	F1	R1/A	Ctrl + F1
F2/L	F2	R2/B	Ctrl + F2
F3/M	F3	R3/C	Ctrl + F3
F4/N	F4	R4/D	Ctrl + F4
F5/O	F5	R5/E	Ctrl + F5
F6/P	F6	R6/F	Ctrl + F6
F7/Q	F7	R7/G	Ctrl + F7
F8/R	F8	R8/H	Ctrl + F8
F9/S	F9	R9/I	Ctrl + F9
F10/T	F10	R10/J	Ctrl + F10
F11/U	Shift + F1	R11/(	Alt + F1
F12/V	Shift + F2	R12/)	Alt + F2
F13/W	Shift + F3	R13/?	Alt + F3
F14/X	Shift + F4	R14/^	Alt + F4
F15/Y	Shift + F5	R15/%	Alt + F5
F16/Z	Shift + F6	R16/$	Alt + F6
F17/:	Shift + F7	R17/@	Alt + F7
F18//	Shift + F8	R18/<	Alt + F8
F19/\	Shift + F9	R19/>	Alt + F9
F20/*	Shift + F10	R20/~	Alt + F10

NOTE: When entering keys using a commercially available USB keyboard, F1 to F10 can be combined with Shift, Ctrl, and Alt to enter the same commands as F11 to F40 on KPM. For details about the key combinations and the key function that is output, see *Key combinations and key functions in Function mode, page 55*.

NOTE:

- F11/F12 on commercially available USB keyboards and KPM differ. When you press F11/F12 in KPM, the result is the same as pressing Shift+F1/Shift+F2.
- In Function mode, when R14/^ is pressed, the code for Alt+F4 on a commercially available USB keyboard is output. The applications running on the host will close because this code corresponds to the exit code of the Windows application.
- For details about function key/special function key operations, see *Key combinations and key functions in Function mode, page 55*.

Configuring the Keyboard Layout

KPM is configured so that it will operate normally with US keyboard layout. When inputting text in Alpha mode, make sure that the keyboard layout is set to US.

Key combinations and key functions in Function mode

By combining Alt and F10, key functions unique to KPM can be created.

Function mode		
Key combination	Function in KPM	Key label
Alt + F10	F40	R20/~

NOTE: When using the key combination in the previous table with a commercially available USB keyboard, the result will be almost the same as the key function in KPM.

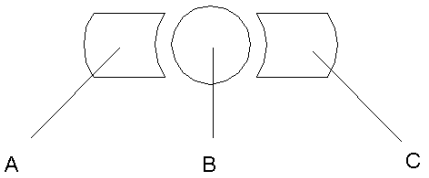
Mouse Keys

At a Glance

Front panels with a keyboard feature keys to simulate the presence of a mouse, similar to a touchpad on a laptop. These keys are located in the bottom right-hand corner of the panel as described below.

Description

The following figure shows the mouse keys:



A Left Mouse Button
B Cursor Movement Button
C Right Mouse Button

Dimensions/Installation

5

Introduction

This chapter presents the iDisplay dimensions and its installation in a panel mounting.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Dimensions	58
Creating a Panel Cut-out for Cabinet Installation	62
Panel Mounting	64
Installing the iDisplay	66

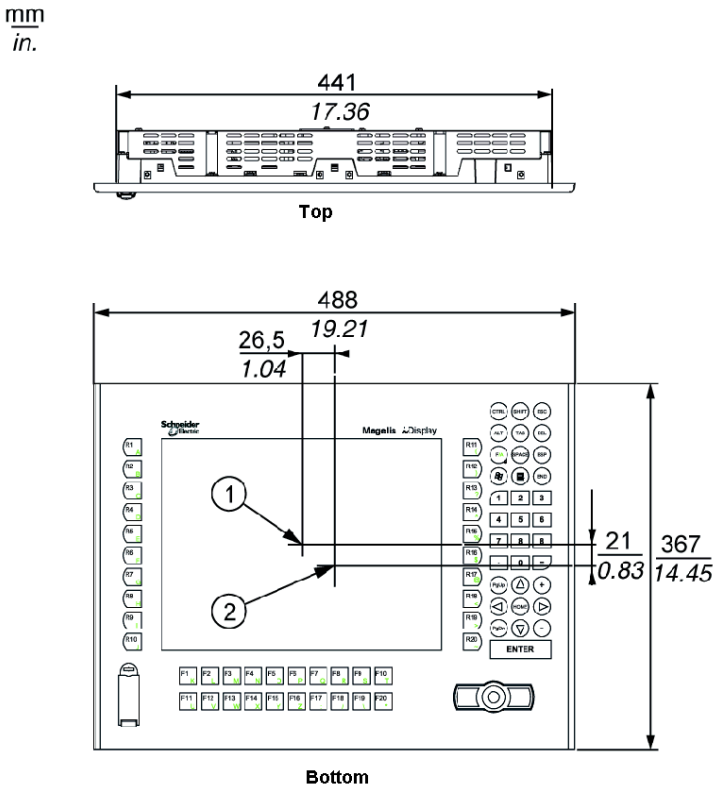
Dimensions

Introduction

The following dimensions are given in millimeters and in inches and apply to all iDisplay units.

External Top and Front Dimensions

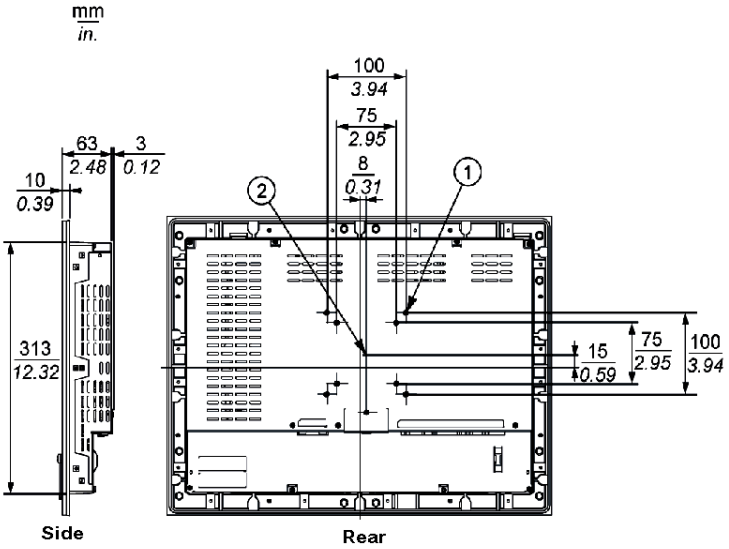
The following diagram shows iDisplay's top and front dimensions:



(1): Center of display area
(2): Center of unit

External Side and Rear Dimensions

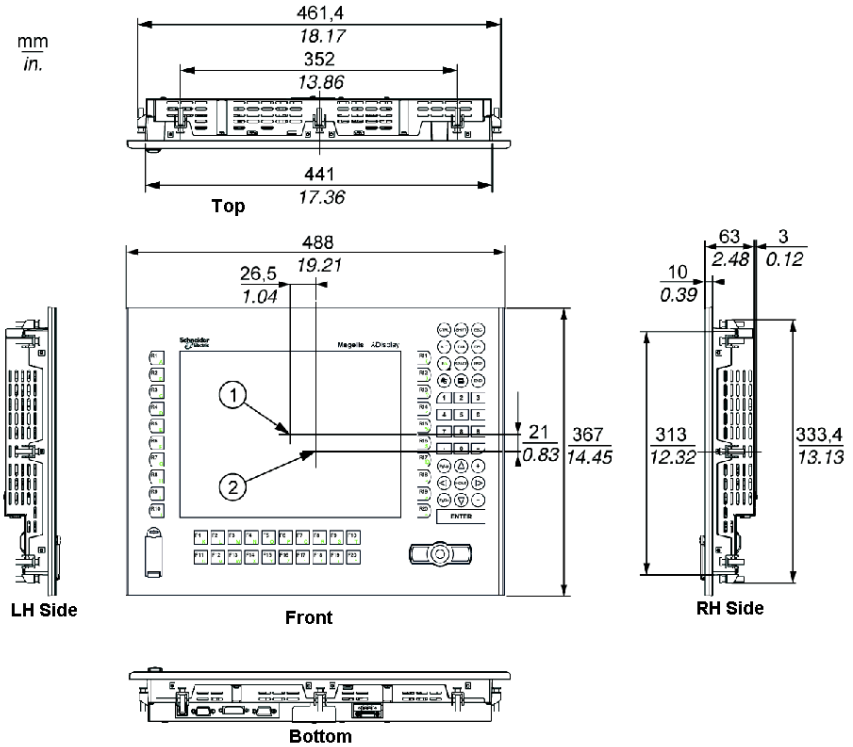
The following diagram shows iDisplay's side and rear dimensions:



(1): 8xM4 Effective Screw Depth (7 mm(0.28 in.))
(2): Center of VESA

Dimensions with Installation Fasteners

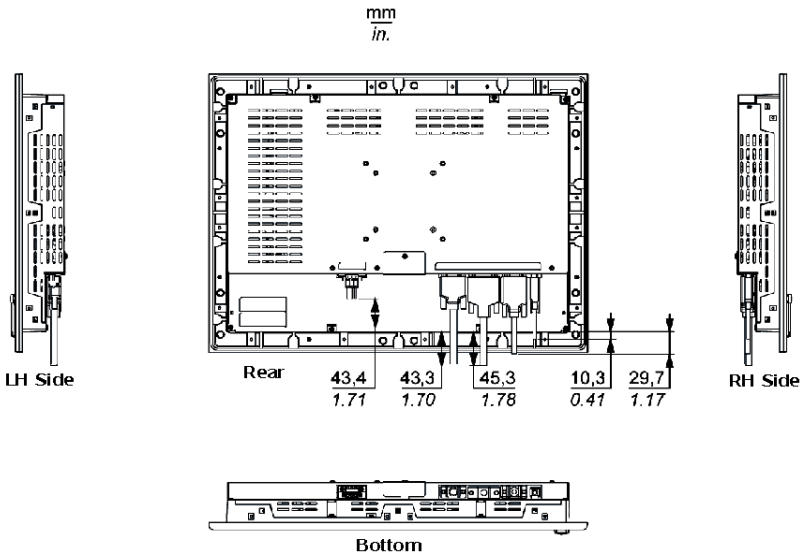
The following diagram shows the dimensions when fasteners are installed:



(1): Center of display area
(2): Center of unit

Dimensions with Cables

The following diagram shows the dimensions with cables (rear view):



NOTE: The above values take into account cable bending. The dimensions given here are representative values depending on the type of connection cable used and are therefore intended for reference only.

Creating a Panel Cut-out for Cabinet Installation

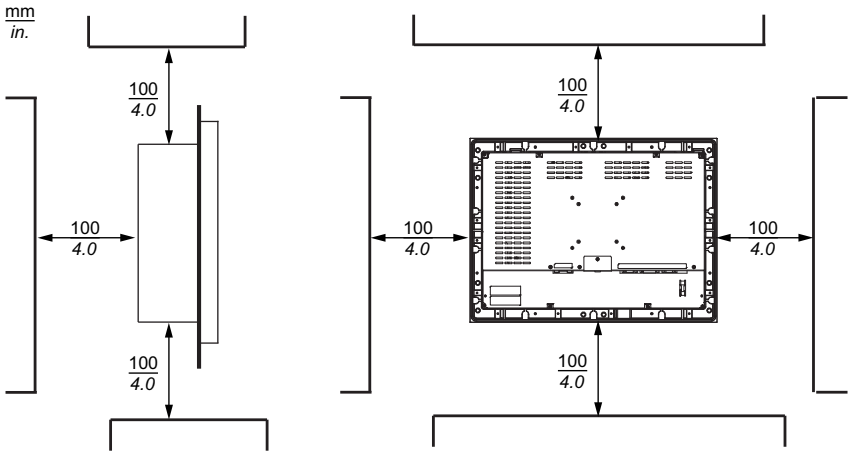
Introduction

For a cabinet installation, the correct sized opening must be cut in the installation panel.

NOTE: The installation gasket and installation fasteners are needed to install the iDisplay 15’’ keyboard.

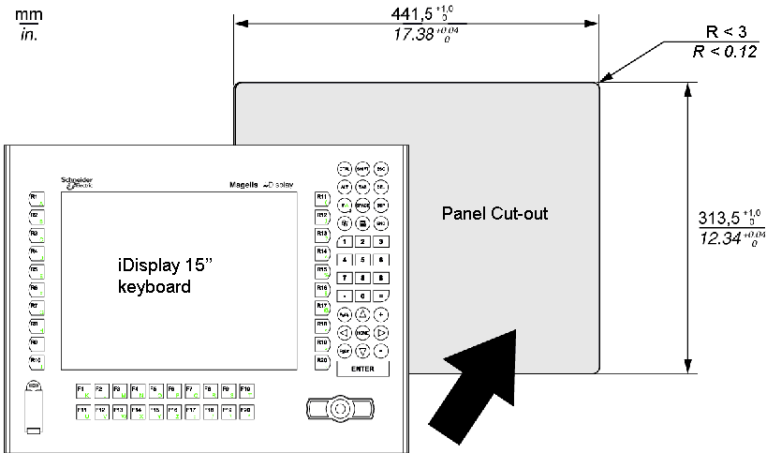
Installation: Space Requirements

For easier maintenance, operation, and improved ventilation, install the iDisplay at least 100 mm (4.0 in.) away from adjacent structures and other equipment.



Inserting a iDisplay

The following diagrams show the panel cut-out. Dimensions are in millimeters and inches:



NOTE:

- Ensure the installation panel thickness is between 1.6 to 10 mm (0.06 to 0.4 in.)
- All panel surfaces used should be strengthened. Due consideration should be given to the product’s weight, especially if high levels of vibration are expected and the product’s installation surface can move. Metal reinforcing strips can be attached to the inside of the panel near the panel cut-out to increase the strength of the panel.
- Ensure all installation tolerances are maintained.
- The iDisplay is designed for use on a flat surface of a Type 1 Enclosure and/or Type 4X and/or Type12 Enclosure.

Panel Mounting

Installation Location

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

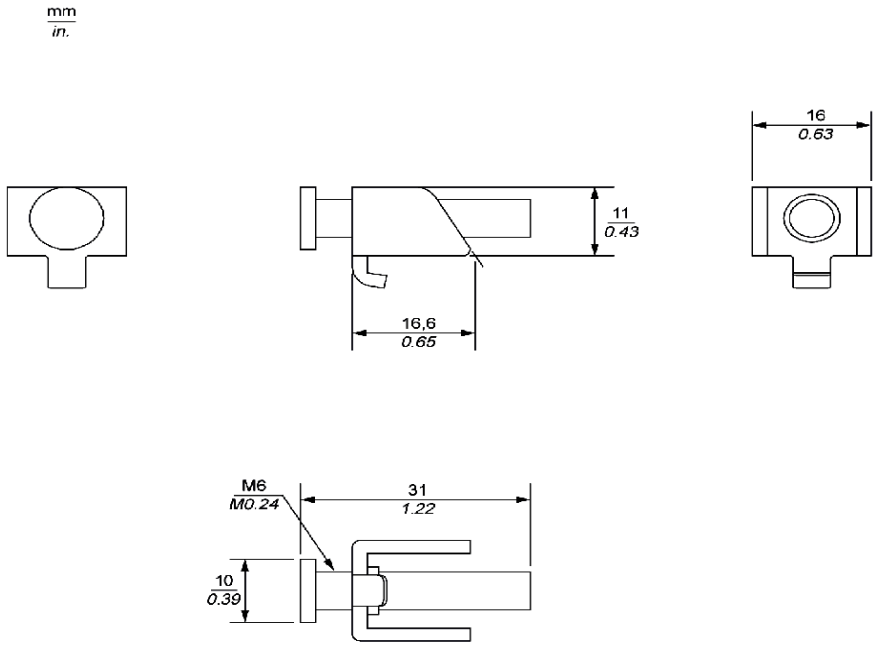
Overheating can cause incorrect device behavior and device damage:

- Place devices dissipating the most heat at the top of the cabinet and ensure adequate ventilation.
- Avoid placing the iDisplay unit next to devices that might cause overheating.
- Install the iDisplay unit in a location providing a minimum clearance of 100 mm (4.0 in.) or more from all adjacent structures and equipment.
- Install the iDisplay unit in a horizontal panel or attach it to a vertical wall according to the figures in this manual.
- Keep the iDisplay unit away from arc-generating devices such as magnetic switches and non-fused breakers.
- Avoid using the iDisplay unit in environments where corrosive gases are present.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Panel Mounting Dimensions

The iDisplay units are designed to be mounted in a cabinet with the Installation Fasteners, as shown below:



Installing the iDisplay

Vibration and Shocks

Extra care should be taken with respect to the specification concerning vibration levels (see *Environmental Characteristics, page 45*) when installing or moving the iDisplay unit. If the iDisplay unit is moved, for example, while it is installed in a rack equipped with caster wheels, the unit can receive excessive shock and vibration.

⚠ CAUTION

EXCESSIVE VIBRATION

- Plan your installation activities so that device shock and vibration tolerances are not exceeded.
- Ensure that the panel opening and thickness are within the specified tolerances.
- Before mounting an iDisplay unit into a cabinet or panel, ensure that the installation gasket is attached to the unit. The installation gasket provides additional protection from vibration.
- The recommended torque for mounting the iDisplay 15'' keyboard device is 0.5 N•m (4.5 lb-in).

Failure to follow these instructions can result in injury or equipment damage.

Installation Gasket

Use of the installation gasket may help extend the operating life of your iDisplay. The gasket is required to meet the protection ratings (IP65, IP20) of the unit and provides additional protection from vibration. Even if moisture protection is not required, install the gasket delivered with your Magelis product.

⚠ CAUTION

LOSS OF SEAL

- Inspect the installation gasket prior to installation or reinstallation, and periodically as required by your operating environment.
- Replace the gasket if visible scratches, tears, dirt, or excessive wear are noted during inspection.
- Do not stretch the gasket unnecessarily or allow the gasket to contact the corners or edges of the frame.
- Ensure that the gasket is fully seated in the installation groove.
- Install the iDisplay into a panel that is flat and free of scratches or dents.
- Tighten the installation fasteners using a torque of 0.5 N•m (4.5 lb-in).

Failure to follow these instructions can result in injury or equipment damage.

Installation Fasteners

⚠ CAUTION

OVERTORQUE AND LOOSE HARDWARE

- Do not exert more than 0.6 N•m (5.3 lb-in) of torque when tightening the screws inserted into plastic parts. Tightening these screws with excessive force can damage the plastic casing of the iDisplay 15'' keyboard.
- When installing or removing screws, be careful that they do not fall inside the iDisplay 15'' keyboard unit's chassis.

Failure to follow these instructions can result in injury or equipment damage.

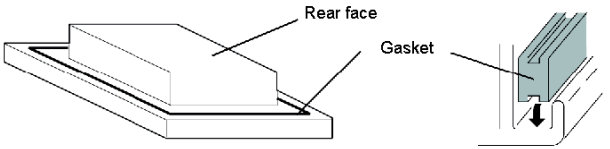
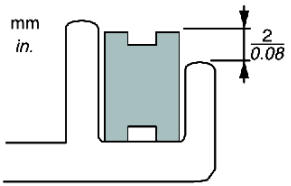
NOTE: The screw installation fasteners are required for Type 4 protection.

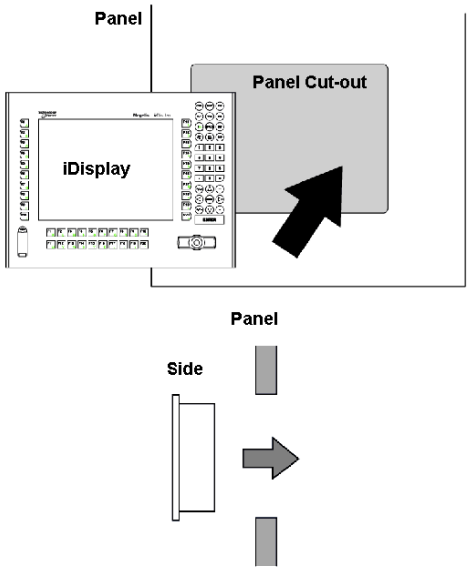
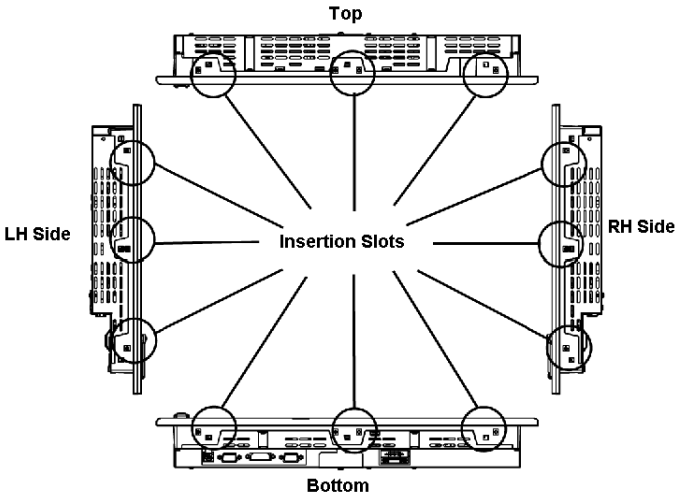
Water and Dust Considerations

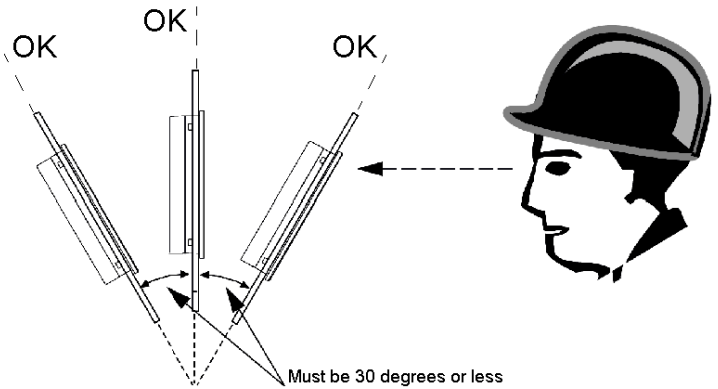
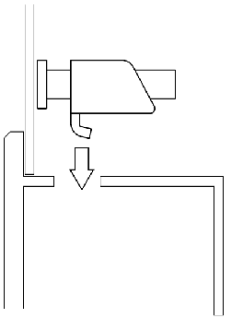
The front face of the iDisplay's front panel conforms to IP65, and displays resistance to dust and liquid water in accordance with that rating. However, the other faces of the front panel, and all faces of the control box of the iDisplay, conform to IP20. This means that these faces do not have any resistance to dust nor water (liquid, vapor, or condensate). Therefore, you must ensure that your installation location is free of dust and water, or you must use a cabinet or other means to protect your device from these substances. When using an enclosure to provide dust and water resistance, remember to inspect the condition of the enclosure's joints, cable grommets, and other openings on a regular basis.

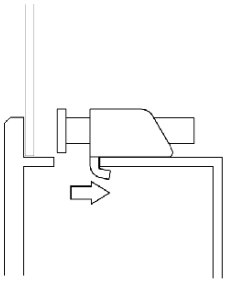
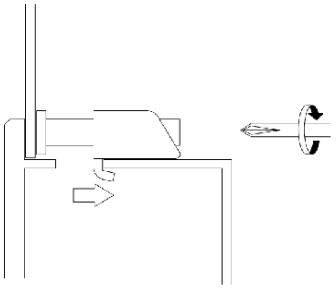
Installing the iDisplay

Follow the steps given below when installing the iDisplay:

Step	Action
1	Attaching the Installation Gasket: 
2	Attach the gasket ensuring that the gasket's grooved edge is on the top and press the gasket completely into the slot. Ensure that the gasket's seam is not inserted into any of the corners of the unit as this may cause the gasket to tear. Check that the gasket is correctly attached to the unit. The upper surface of the gasket should protrude evenly approximately 2 mm (0.08 in.) out of the groove: 

Step	Action
3	Insert the iDisplay into the Panel Cut-out: 
4	Insert the installation fasteners securely into the 12 slots recesses of the unit: 

Step	Action
5	If you are installing the iDisplay in a slanted panel, make sure that the panel is not tilted more than 30 degrees: 
6	Insert each fastener: 

Step	Action
7	Pull each fastener back until it is flush with the rear of the attachment hole: 
8	Use a screw driver to tighten to 0.5 N•m (4.5 lb-in.) each fastener screw and secure the iDisplay in place: 

Implementation

II

Introduction

This part describes the implementation of the product.

What's in this Part?

This part contains the following chapters:

Chapter	Chapter Name	Page
6	Main Power Connection	75
7	External Connections	85

Main Power Connection

6

Introduction

This chapter describes the connection of the iDisplay to the main power supply.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Grounding	76
Connecting the AC Power Cord	80
Connecting the Power Supply	82

Grounding

Overview

The grounding resistance between the iDisplay's Frame Ground (FG) and Ground must be 100 Ω or less. When using a long grounding wire, check the resistance and if required, replace the wire with a thicker gauge wire and enclose it in an electrical conduit. In addition, please refer to the table below for maximum line lengths for each thickness of wire.

Ground Wire Dimensions

Wire Thickness	Maximum Line Length
2 mm^2 (14 AWG)	30 m (98 ft.)
	60 m (196 ft.) round trip.
1.5 mm^2 (16 AWG)	20 m (65 ft.)
	40 m (131 ft.) round trip.

⚠ WARNING

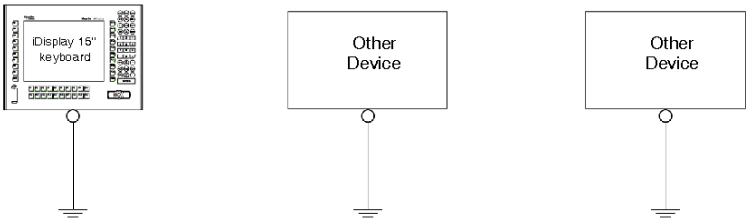
UNINTENDED EQUIPMENT OPERATION

- Use only the authorized grounding configurations shown below.
- Confirm that the grounding resistance is 100 Ω or less.
- Use only copper conductors rated for 75°C (167°F) or greater.
- Test the quality of your ground connection before applying power to the device. Excess noise on the ground line can disrupt the iDisplay's operations.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

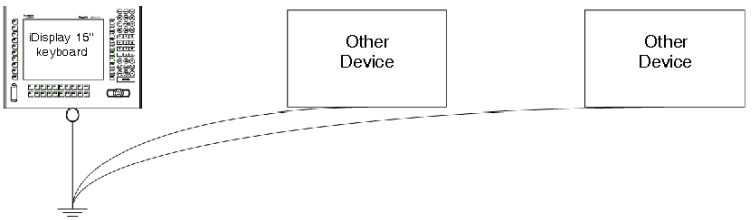
Dedicated Ground

Connect the Frame Ground (FG) to a dedicated ground.



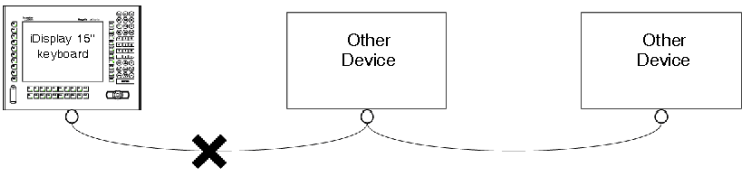
Shared Ground Allowed

If a dedicated ground is not possible, use a shared ground, as shown below.



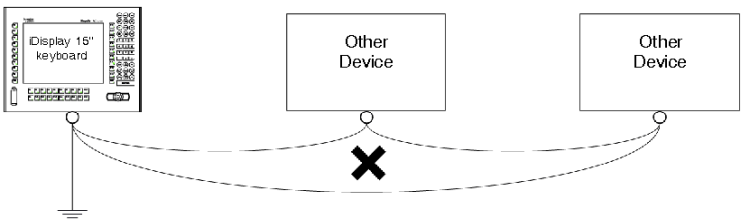
Shared Ground not Allowed

Do not connect the iDisplay 15'' unit to ground through other devices using the SG terminal.



Shared Ground - Avoid Ground Loop

When connecting an external device to a iDisplay with the Shield Ground (SG), ensure that no ground loop is created. The iDisplay's FG and SG are connected internally.



Grounding Procedure

When grounding, follow the procedures given below:

Step	Action
1	Check that the grounding resistance is 100 Ω or less.
2	When connecting the SG line to another device, ensure that the design of the system/connection does not produce a ground loop. **Note:** The SG and FG terminals are connected internally in the unit.
3	Wherever possible, use 2 mm^2 (14 AWG) wire to make the ground connection. If this isn't possible, ensure that the grounding wire gauge and length conform to the table in *Ground Wire Dimensions, page 76*. Create the connection point as close to the unit as possible and make the wire as short as possible.

Grounding I/O Signal Lines

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a iDisplay 15" keyboard device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Substitution of components may impair suitability for Class I, Division 2.
- Do not connect or disconnect any cable or wire while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in Control Drawing of the USB outlet (See *Control Drawing of the USB outlet on the Magelis iDisplay 15" keyboard, page 87*).
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not wire I/O lines in proximity to power cables, radio devices, or other equipment that may cause electromagnetic interference.
- If wiring of I/O lines near power lines or radio equipment is unavoidable, use shielded cables and ground one end of the shield to the iDisplay's Frame Ground (FG).

Electromagnetic radiation may interfere with the iDisplay's control communications.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Connecting the AC Power Cord

Connecting the Terminal Block

Connect the power cord to the terminal block attached to the Magelis iDisplay unit. The terminal block is removable from the Magelis iDisplay keyboard 15'' unit.

Overview

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Unplug the power cable from both the iDisplay and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the iDisplay 15'' keyboard. This unit is designed to use 100...240 Vac input.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

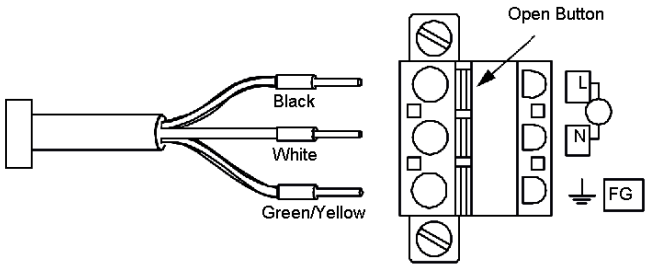
EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION

- Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration environment when making this determination.
- Securely attach power, communication, and external accessory cables to the panel or cabinet.
- Use only commercially available cables as specified in this manual.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Wiring the Terminal Block

When connecting the wires, follow the procedures given below:

Step	Action
1	Confirm that the power cable is disconnected from the power supply.
2	Check the color of each cable core before connecting it to the attachment hole.
3	Open the cable attachment holes of the terminal plug by pressing the corresponding button on the plastic terminal.
4	Remove the wire's external covering and insert the crimp-type pin terminal of the cable core completely into the opening.
5	Release the pressure on the plastic terminal to close the holes and fix the cables in place: 

Connecting the Power Supply

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Unplug the power cable from both the iDisplay and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the iDisplay 15'' keyboard. This unit is designed to use 100...240 Vac input.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a iDisplay 15'' keyboard device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Substitution of components may impair suitability for Class I, Division 2.
- Do not connect or disconnect any cable or wire while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in Control Drawing of the USB outlet (See *Control Drawing of the USB outlet on the Magelis iDisplay 15'' keyboard, page 87*).
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

Failure to follow these instructions will result in death or serious injury.

⚠ WARNING

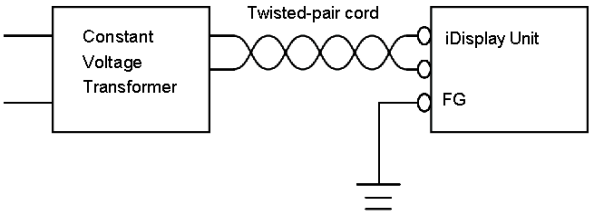
LOSS OF CONTROL

- The designer of any control scheme must consider the potential failure modes of control paths and, for certain critical control functions, provide a means to achieve a safe state during and after a path failure. Examples of critical control functions are emergency stop and overtravel stop.
- Separate or redundant control paths must be provided for critical control functions.
- System control paths may include communication links. Consideration must be given to the implications of unanticipated transmission delays or failures of the link. *1
- Each implementation of a Magelis iDisplay must be individually and thoroughly tested for proper operation before being put into service.

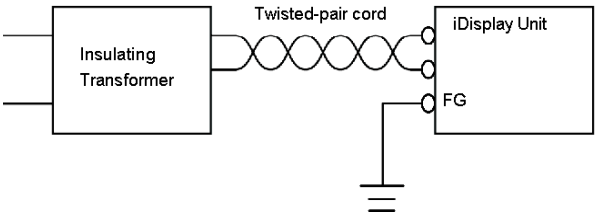
Failure to follow these instructions can result in death, serious injury, or equipment damage.

Power Supply Connections

If the power supply voltage exceeds the iDisplay unit's specified range (85 - 264 Vac), connect a constant voltage transformer as illustrated below:

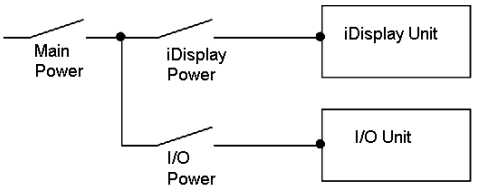


Between the line and ground, or between the lines, select a power supply that is low in noise. If there is an excess amount of noise, connect an insulating transformer as illustrated below:



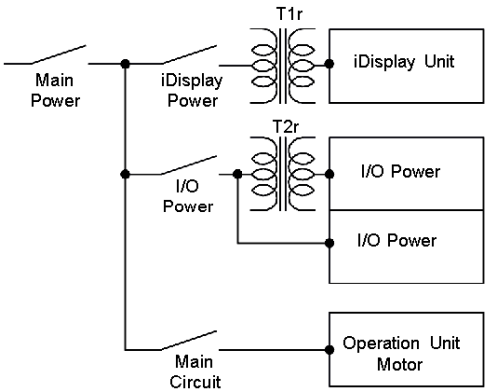
NOTE: Use constant voltage and insulating transformers with capacities of the rated value or more.

When supplying power to the iDisplay unit, separate the input/output and operation lines as shown below:

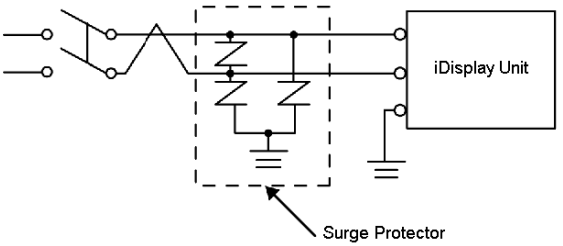


To increase the noise resistance quality of the power cable, simply twist each power wire before attaching the Ring Terminal.

The power supply cable must not be bundled or positioned close to main circuit lines (high voltage, high current), or input/output signal lines. It should be separated as illustrated in the diagram below.



To deal with power surges, connect a surge protector as shown in the diagram below:



To avoid excess noise, make the power cable as short as possible.

The temperature rating of field installed conductors: 75°C only.

NOTE:

- Ground the surge protector separately from the iDisplay unit.
- Select a surge absorber that has a maximum circuit voltage greater than the power supply's peak voltage.

External Connections

7

Introduction

This chapter describes the external connections of the iDisplay.

What's in this Chapter?

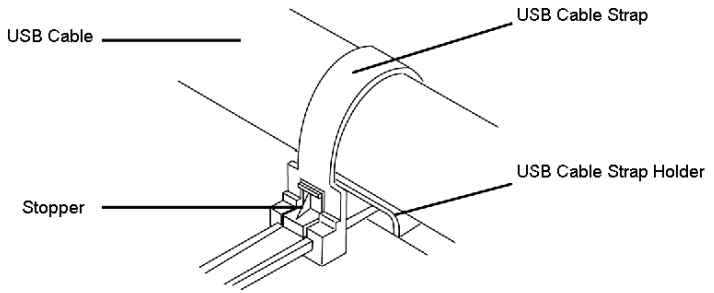
This chapter contains the following topics:

Topic	Page
Connecting the USB Cable Strap	86
Control Drawing of the USB outlet on the Magelis iDisplay 15” keyboard	87
Connecting the RGB, DVI-D, and 232C Cable	89
Connecting I/O Signal Lines	90

Connecting the USB Cable Strap

USB Cable Strap Attachment

When attaching the USB Cable Strap, follow the procedures given below:

Step	Action
1	Connect the USB Cable to the connector.
2	Insert the cable strap into the cable strap holder, and tighten the strap until the cable is secured in place. 

USB Cable Strap Removal

When removing the USB Cable Strap, follow the procedures given below:

Step	Action
1	Push in the cable strap's stopper until the cable strap band is unlocked, then remove the band.
2	Disconnect the USB cable.

Control Drawing of the USB outlet on the Magelis iDisplay 15’’ keyboard

Introduction

The information below concerns the use of the USB outlet located on the front panels of the Magelis iDisplay 15’’ keyboard used in Class 1, Division 2 Groups A, B, C, and D hazardous locations.

⚠ WARNING

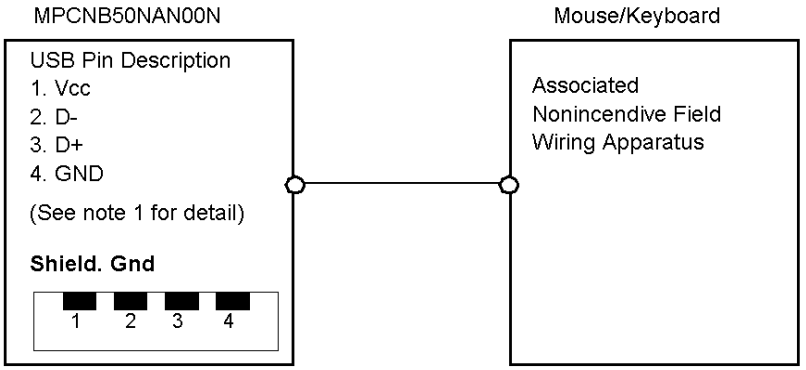
LOSS OF CONTROL

- The designer of any control scheme must consider the potential failure modes of control paths and, for certain critical control functions, provide a means to achieve a safe state during and after a path failure. Examples of critical control functions are emergency stop and overtravel stop.
- Separate or redundant control paths must be provided for critical control functions.
- System control paths may include communication links. Consideration must be given to the implications of unanticipated transmission delays or failures of the link. *1
- Each implementation of a Magelis iDisplay must be individually and thoroughly tested for proper operation before being put into service.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Description

Non incendive equipment (keyboards, mouse) are permitted for use on the iDisplay 15'' Keyboard unit's Front USB port. In addition to being non incendive, any equipment connected to the Front USB port must satisfy the following criteria (information taken from the Schneider Electric Corporation document: 35016429):



Notes:

1. Nonincendive Circuit Parameters:

Front USB Port:	
Open-circuit voltage	Voc = 5.0 V
Short-circuit current	Isc = 1.25 A
Associated capacitance	Ca = 10 μF
Associated inductance	La = 16 μH

2. Selected Associated Nonincendive Field Wiring Apparatus shall satisfy the following:

Associated Nonincendive Field Wiring Apparatus (Mouse, Keyboard)	**-**	**Magelis iDisplay 15'' keyboard**
Voc	≤	Vmax
Isc	≤	Imax
Ca	≥	Ci + C cable
La	≥	Li + L cable

3. If the electrical parameters of the cable are unknown, the following values may be used: Capacitance = 60 pF/ft and Inductive = 0.20 μH/ft.

4. Nonincendive Field Wiring must be installed in accordance with article 501.4(B)(3) of the National Electrical Code ANSI/NFPA 70.

5. Associated Nonincendive Field wiring Apparatus shall not contain or be connected to another source of power.

Connecting the RGB, DVI-D, and 232C Cable

Attaching the RGB, DVI-D, and 232C Cable

After connecting the RGB, DVI-D, and 232C Cables, the plug can be attached by tightening the connection screws.

Connecting I/O Signal Lines

I/O signal lines must be wired separately from the power circuit cable. If the power circuit cable needs to be wired with the input/output (I/O) signal lines for any reason, use shielded cables and ground one end of the shield to the iDisplay's Frame Ground terminal.

Signals can only be received from an isolated secondary source.

All interface ports, except for the USB (Front) interface port, are not intended to be directly connected to a signal source greater than 30 Vdc and to an available current greater than 5 mA. For USB front, refer to *Control Drawing of the USB outlet on the Magelis iDisplay 15" keyboard, page 87*.

Installation

III

Introduction

This part describes the product installation.

What's in this Part?

This part contains the following chapters:

Chapter	Chapter Name	Page
8	Operation Mode Setup and Display Positioning	93
9	Connections	105
10	Touch Panel Communication Program	109
11	Maintenance	111
12	Troubleshooting	121
13	Accessories	127

Operation Mode Setup and Display Positioning

8

Introduction

This chapter describes the Operation Mode Setup and Display Positioning.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Dip Switches and Slide Switch Operation	94
Status of Front LED	97
Running the OSD	98

Dip Switches and Slide Switch Operation

Introduction

All operation must be realized in non hazardous location only.

⚠ WARNING

EQUIPMENT DISCONNECTION OR UNINTENDED EQUIPMENT OPERATION

- Ensure that power, communication, and accessory connections do not place excessive stress on the ports. Consider the vibration environment when making this determination.
- Securely attach power, communication, and external accessory cables to the panel or cabinet.
- Use only commercially available cables as specified in this manual.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

⚠ WARNING

EXPLOSION - SWITCH CAUSES SPARK

- Do not operate the dip switches or slide switch in a Class I, Div 2, Groups A, B, C, or D hazardous location.
- Verify that the location is non-hazardous before operating the dip switches or slide switch.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

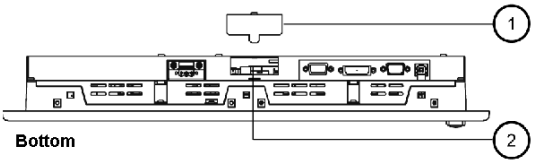
The Dip Switches and the Slide switch are located at the bottom of the iDisplay unit.

To make the change effective, the power supply must be ON.

NOTE: After changing the settings of the Dip Switches and the Slide Switch, make sure you restart the iDisplay so that your changes become effective.

Loosen the screws of the cover with a head screwdriver and then remove the cover. After setting the dip switches and slide switches, reinstall the cover and screws with a screwdriver. The tightening torque for those screws is 0.5 to 0.6 N•m (4.4 to 5.3 lb-in).

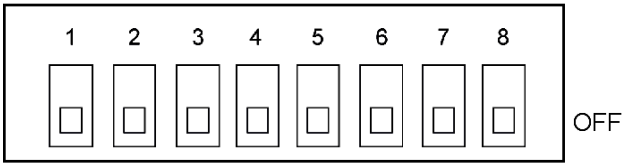
The following figure shows the location of the Dip and Slide Switches:



(1): Cover
(2): Dip Switches (SW1)
Slide Switch (SW2)

Dip Switches Operation

The following figure shows the factory default position for the Dip and Slide Switches:



The following table describes each Dip Switch:

Item	Dip Switch	Description
1	SW1-1	Reserved (Always OFF)
2	SW1-2	Display/Hide the OSD (On Screen Display)
3	SW1-3	Reserved (Always OFF)
4	SW1-4	Reserved (Always OFF)
5	SW1-5	Reserved (Always OFF)
6	SW1-6	Reserved (Always OFF)
7	SW1-7	Reserved (Always OFF)
8	SW1-8	Reserved (Always OFF)

SW1-2:

- Switch ON: to hide the OSD (On Screen Display)
- Switch OFF: to display the OSD

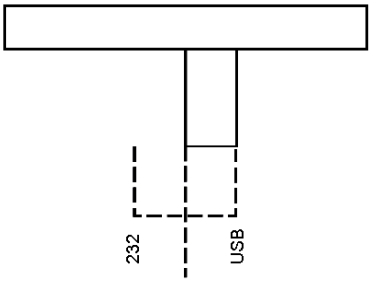
The default setting is OFF.

Slide Switch Operation

The slide switch is used to switch the data input (command control) method on the touch panel between USB and RS-232C.

The default setting is USB.

The following figure illustrates the Slide Switch:



Status of Front LED

Status of Front LED in Operation Modes

The following table describes the status of Front LED:

		LED Status				
		OFF	**Green**	**Orange**	**Green/Red Flash**	**Orange Flash**[1]
Component	Panel	Power OFF	Power ON	Power ON	Power ON	Power ON
	Backlight	-	Normal	Normal	Burned-out	Burned-out
	Input of Image	-	Yes	No	Yes	No

[1] When "no signal" is displayed.

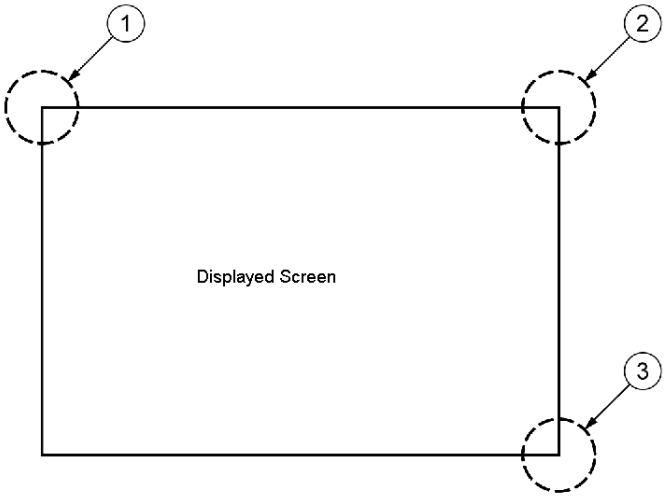
Running the OSD

Title of Overview Block

You can operate the iDisplay screen menus via the touch panel and adjust the screen image display to a minute level. This feature is called OSD (On Screen Display).

Starting the OSD

The following figure shows how to start the OSD:



To start the OSD and enter OSD mode:

Press the three corners of the touch panel in the following order within 5 seconds:

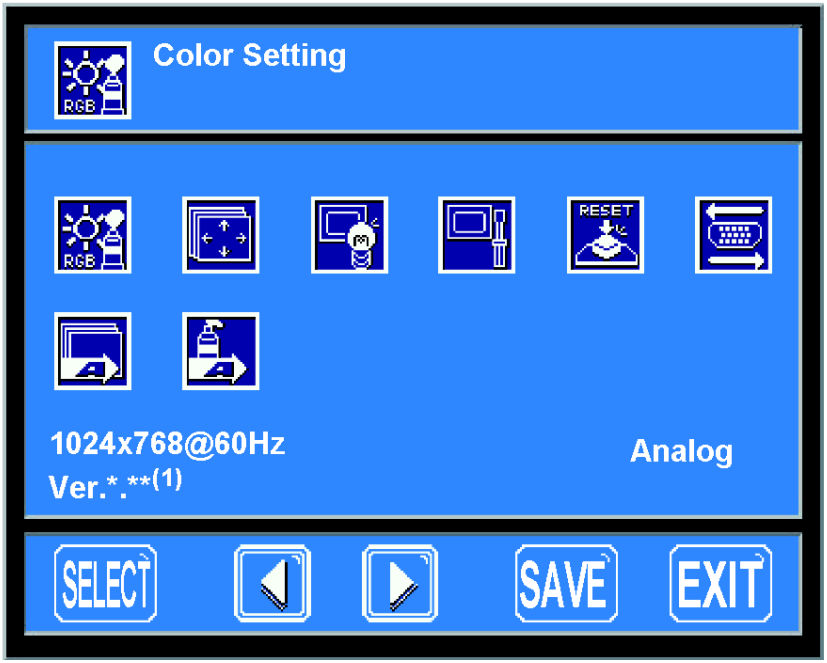
- (1) upper left
- (2) upper right
- (3) lower right

In OSD mode, the setting screen is displayed in the center of the screen. In this mode, the touch panel cannot be used to export data to external devices unless the settings for the OSD are completed.

NOTE: The OSD is not displayed when Dip switch SW1-2 is ON.

Main Menu

The following figure shows the Main Menu:



(1) Ver.*.**: indicates the version of the OSD

Using the OSD

When the OSD is started, the Main Menu appears. Touch the icon of an item to display its submenu or settings change screen:

- Use the icon to change the setting.
- Press the SET button to apply the setting.
- Press the SAVE button to save the defined settings.

NOTE: If the power is turned OFF without saving the set values, this setting will be lost and the last saved setting will be read into the system when the iDisplay starts. To avoid this always save your settings.

Exiting the OSD

To exit the OSD, press the SAVE or EXIT button in the top menu or leave the OSD as it is at least 30 seconds.

If the OSD automatically closes after 30 seconds of inactivity, the values set before the OSD was closed will be retained until the power is turned off or the OSD receives a reset command. Use the SAVE button to commit your changes so they are not lost the next time power is cycled. .

The Tools used

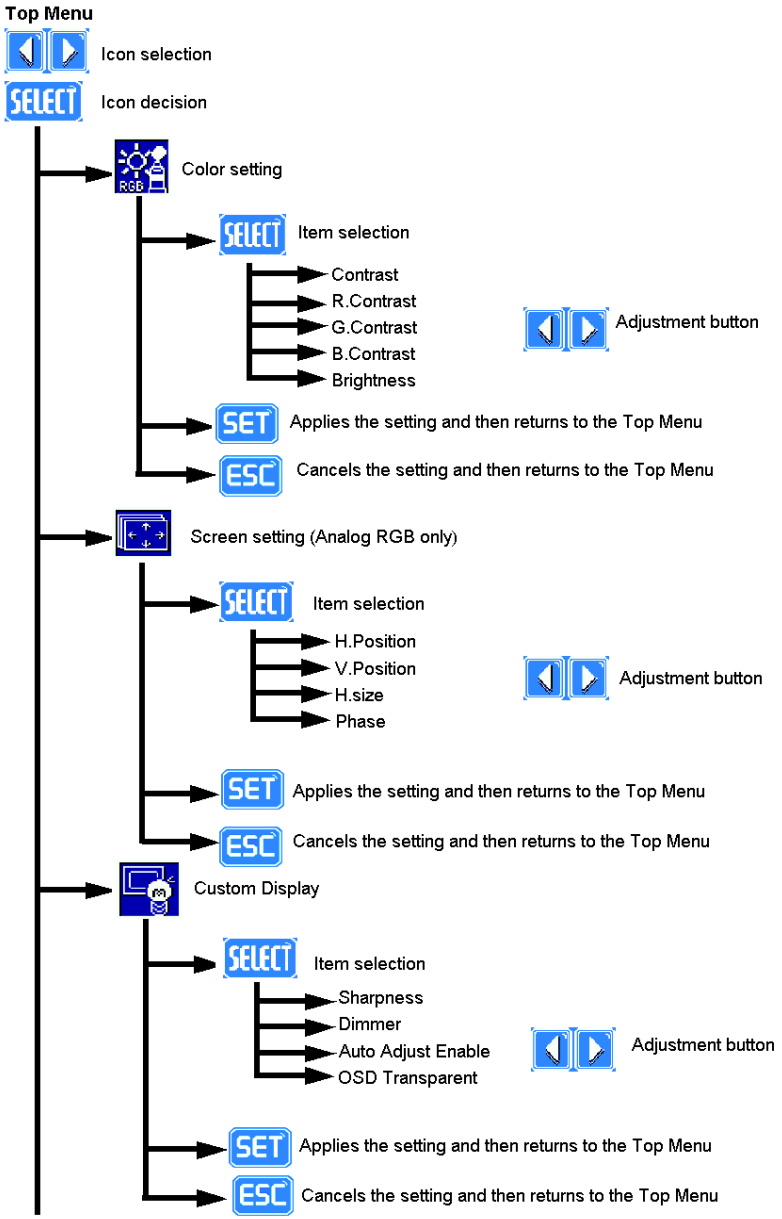
The following table describes Tool functions:

Icon	Tool	Function
RGB	Color setting	Adjusts the contrast and the brightness
	Screen setting	Adjusts the display position of the screen (Analog RGB only).
	Custom display	Adjusts sharpness and the backlight brightness.
	System settings	Changes settings such as activating the click sound.
RESET	All reset	Resets the current OSD value to the default value.
	Input source	Switches between Analog RGB and DVI-D.
	Auto adjust	Automatically adjusts the display position of the screen (Analog RGB only).

Icon	Tool	Function
	Auto gain	Automatically adjusts the contrast and the brightness (Analog RGB only).
	ESC	Cancels the setting and returns to the top menu.
	SET	Applies the setting and returns to the top menu.
	Arrow KEY	Changes the selection.
	SELECT	Selects icons or items.
	SAVE	Saves the current value and exits the OSD.
	EXIT	Cancels the current value and exits the OSD.

iDisplay Menu

The following figure illustrates the iDisplay menu structure:



System setting

SELECT Item selection

Adjustment button

Click Tone

Enables/disables the click sound. With this parameter, the sound level can also be adjusted.
(Default value: OFF <Click sound disabled>)

720x400 Mode

When an input data resolution of 720 x 400 is used in the VGA text mode, set this parameter to ON. For other resolutions, set this parameter to OFF. (Default: OFF)

Auto off Disp

Enables/disables the screen display Auto OFF function and sets the time when the Auto OFF function is enabled.
(Default: OFF <Auto OFF function disabled>)
The Auto OFF function automatically turns off the display when the touch panel is not used for some period of time. With this parameter, you can set the time interval to turn off the screen display (how much time passes before the screen display is turned off) when the touch panel is not used. If the touch panel is not touched over the set time, the backlight will automatically turns off.
Select the time period from 1 min, 3 min, 5 min, 10 min, and OFF (Auto OFF function disabled).

BL Alarm

Enables/disables the Backlight burnout detect function.
(Default: ON)
When a burned-out backlight is detected, the Front LED flashes alternately green and red, or a steady orange.
Touch-operation will be disabled when the backlight burns out, which prevents the iDisplay 15" keyboard from sending input signals to the PLC.

Note: Normally, the iDisplay 15" keyboard unit detects a backlight burnout by monitoring the backlight's current flow, however, the iDisplay 15" keyboard may not detect this condition, depending on the type of backlight anomaly.

Detect 2-Point Touch

Enables/disables ability to halt the data output procedure when two points of the touch panel are pressed.
(Default: OFF <Disable>)

Note:
- When doing the touch operation on a screen like the desktop of Windows®, disable this function.
- Depending on the conditions, it may not be able to be detected that the two points were pressed.

Power on Buzzer

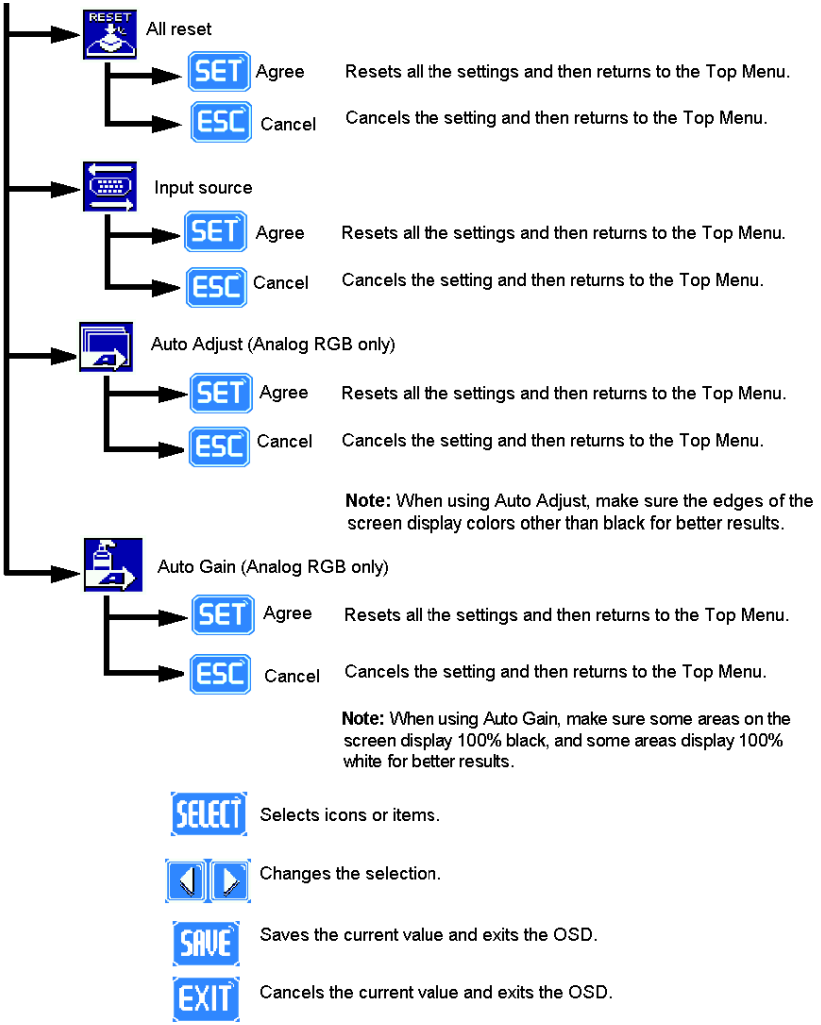
Enables/disables the buzzer that sounds when turning on the power. (Default: OFF < Buzzer sound disabled>)

USB Touch Panel ID

Set the touch panel ID number using a number from 0 to 3, when connecting to USB. (Default: 0)
When connecting more than one panel to one host using a USB, set the ID numbers so that they do not overlap.

SET Applies the setting and then returns to the Top Menu

ESC Cancels the setting and then returns to the Top Menu



NOTE: The iDisplay unit detects a backlight burnout by monitoring the backlight's current flow. However, the iDisplay may not detect this condition, depending on the type of backlight anomaly.

Connections

9

Introduction

This chapter presents the iDisplay Connections to a PC and the Touch Panel Data.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Connecting the iDisplay to a PC	106
Touch Panel Data	107

Connecting the iDisplay to a PC

Connecting

The iDisplay unit is designed for standard XGA mode.

The following table presents the number of pixels displayed:

Size	H.Sync. (kHz)	V.Sync. (Hz)	Dot Clock (MHz)	Screen Resolution Expansion (H: Horizontal) (V: Vertical)	Display Resolution
640 x 400	24.827	56.420	21.053	H: x 1.6 V: x 1.92	
640 x 400	31.469	70.000	25.175		
640 x 480	31.469	59.992	25.175	H: x 1.6 V: x 1.6	
640 x 480	35.000	66.670	30.240		
640 x 480	37.500	75.000	31.500		
720 x 400 *1	31.469	70.000	28.320	H: x 1.42 V: x 1.92	
800 x 600	37.879	60.317	40.000	H: x 1.28 V: x 1.28	
800 x 600	46.875	75.000	49.500		
1024 x 768	48.363	60.004	65.000	H: x 1.0 V: x 1.0	
1024 x 768	56.476	70.069	75.000		
1024 x 768	60.023	75.029	78.750		1024 x 768

NOTE: *1 When you use 720 x 400 size, select "720 x 400 Display Resolution 720 x 400 DSP" in the OSD (On screen display) system setting.

NOTE:

- If you enter a signal timing value not compatible with this device, or if the timing value is larger than can be displayed by the dot clock, an "OUT OF RANGE" message is displayed. If this occurs, be sure to read your computer manual and enter a value that is compatible with this device.
- If you do not enter a signal (synchronized signal), a "NO SIGNAL" message is displayed.

Magelis iDisplay and PC's VGA board:

- Some types of VGA boards may not be within the ranges specified above, and, therefore, cannot be connected to the iDisplay.
- Also, if you change your PC's VGA board, it is possible that the new board cannot be connected to the iDisplay.

Touch Panel Data

Introduction

The iDisplay uses an analog type touch panel, and can therefore detect all 1024 x 768 coordinates.

A calibration program can be used to adjust the touch position.

OS and Touch Panel Driver Combinations

The following table lists the OS and Touch Panel Combinations:

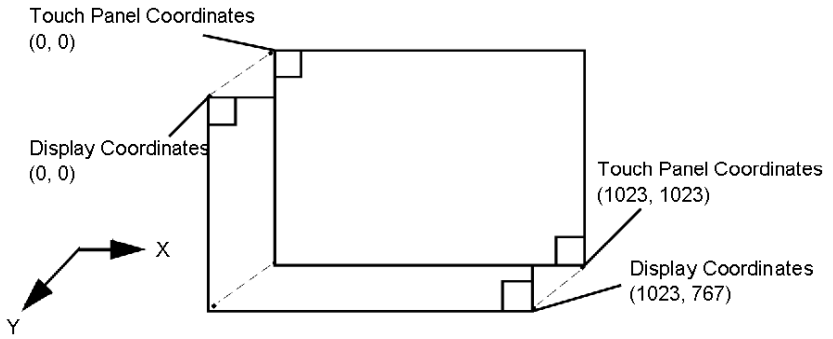
OS	Touch I/F Program	Calibration
For Windows® NT4.0, "SP6A" or newer version is supported.	UPDD (Universal Pointer Device Driver)	Feature included in the touch I/F program.
Windows® 2000		
Windows® XP		
Windows Vista		

Touch Panel Coordinate Data Resolution

Both the X and Y coordinates have a resolution of 1024.

The origin point (0,0) is located in the upper left corner of the screen.

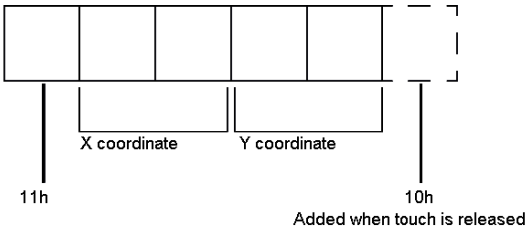
Screen display origin, with resolution of 1024 x 768, is normally located at the upper left hand corner of the screen. Therefore, a program to convert the touch coordinates to display coordinates is required.



Touch Panel Coordinate Data Format

All data is in binary format:

- Header: 1 byte (11h=touched; 10h=released)
- X coordinate: 2 bytes (0 to 3FFh)
- Y coordinate: 2 bytes (0 to 3FFh)



Example:

If the coordinate [(X=23 (11h), Y=500 (1F4h)] is touched and moved to the coordinate (X=63(3Fh),Y=250(FAh)):

Coordinate Data	Action
11h 0h 17h 1h F4h	Touched
11h 0h 17h 1h F4h	Continuous output with the same location
11h 0h 18h 1h F5h	Moving the location without releasing touch
•	•
•	•
•	•
11h 0h 3h 1h FAh	Continuous data output unless finger is released
11h 0h 3h 1h FAh 10h	When released, only 1 unit of data is sent

Touch Panel Communication Program

10

iDisplay Software

Touch Panel Drivers

To install and use the software, refer to the Touch Panel Drivers section of the CD-ROM (User Manual Touch Panel Communication Program).

NOTE: When a COM port has been configured to be used with touch panel application through RS-232 cable, this COM port needs to be released manually to be operationnal for another use.

Maintenance

11

Overview

This chapter explains how to maintain the iDisplay.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Regular Cleaning	112
Replacing the Gasket	116
Maintenance Checks	119

Regular Cleaning

⚠ DANGER

CHEMICAL BURNS TO EYES OR SKIN

- Do not use tools to operate the touch panel or in the vicinity of the display.
- When placing the display face-down, select a clean, level, non-abrasive surface. If necessary, place a soft, non-abrasive pad on the surface before lowering the unit.
- If a leak in the LCD panel is discovered and you come in contact with the liquid crystal material, follow theses procedures:
  - In the case of contact with eyes or mouth, flush with running water for 15 minutes minimum.
  - In the case of contact with skin or clothing, wipe off the liquid crystal material and wash with soap and running water for 15 minutes minimum.
  - If liquid crystal is ingested, induce vomiting, rinse mouth, and then drink a large quantity of water.
  - Follow any other hazardous substances safety procedures required by your facility.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Unplug the power cable from both the iDisplay and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the iDisplay 15'' keyboard. This unit is designed to use 100...240 Vac input.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a iDisplay 15'' keyboard device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Substitution of components may impair suitability for Class I, Division 2.
- Do not connect or disconnect any cable or wire while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in Control Drawing of the USB outlet (See *Control Drawing of the USB outlet on the Magelis iDisplay 15'' keyboard, page 87*).
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

Failure to follow these instructions will result in death or serious injury.

⚠ CAUTION

HARMFUL CLEANING SOLUTIONS

- Do not clean the unit or any component of the unit with paint thinner, organic solvents, or strong acids.
- Use only a mild soap or detergent that will not harm the polycarbonate material of the screen.

Failure to follow these instructions can result in injury or equipment damage.

⚠ CAUTION

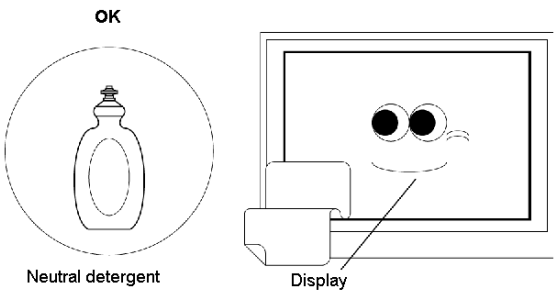
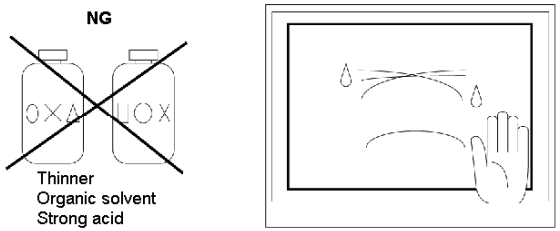
LOSS OF SEAL

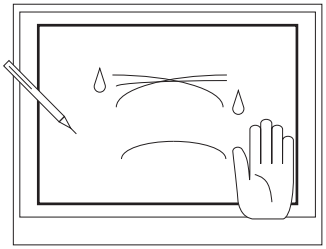
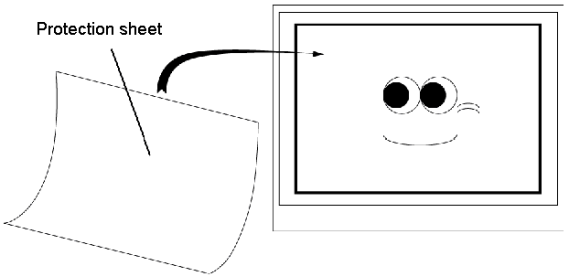
- Inspect the installation gasket prior to installation or reinstallation, and periodically as required by your operating environment.
- Replace the gasket if visible scratches, tears, dirt, or excessive wear are noted during inspection.
- Do not stretch the gasket unnecessarily or allow the gasket to contact the corners or edges of the frame.
- Ensure that the gasket is fully seated in the installation groove.
- Install the iDisplay into a panel that is flat and free of scratches or dents.
- Tighten the installation fasteners using a torque of 0.5 N•m (4.5 lb-in).

Failure to follow these instructions can result in injury or equipment damage.

Cleaning the iDisplay

The following table explains how to clean the iDisplay:

Display	How to clean
	When the display surface or frame becomes dirty, use a soft cloth moistened with neutral detergent to wipe away any dust or stains.
	Do not clean the unit with thinner, organic solvents, or strong acids.

Display	How to clean
	Do not use sharp or hard objects, such as a mechanical pencil or screwdriver, to push on the display. This could damage the unit.
	Attach the screen protection sheet when using the iDisplay in extremely dirty or dusty areas.

Replacing the Gasket

Introduction

The installation gasket protects the iDisplay and improves its water resistance. The gasket must be inserted correctly into the groove for the iDisplay unit's moisture resistance to be equivalent to IP65.

⚠ CAUTION

LOSS OF SEAL

Read and understand the safety information in Regular Cleaning *(see page 112)* before attempting this procedure.

Failure to follow these instructions can result in injury or equipment damage.

NOTE: The Gasket is included with the Maintenance Kit.

Installation Gasket

Use of the installation gasket may help extend the operating life of your iDisplay. The gasket is required to meet the protection ratings (IP65, IP20) of the unit and provides additional protection from vibration. Even if moisture protection is not required, install the gasket delivered with your product. A gasket which has been used for a long period of time may have scratches or dirt on it, and could have lost much of its water resistance. Change the gasket at least once a year, or when scratches or dirt become visible.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

Read and understand the safety information in Regular Cleaning *(see page 112)* before attempting this procedure.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

EXPLOSION HAZARD

Read and understand the safety information in Regular Cleaning *(see page 112)* before attempting this procedure.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

CHEMICAL BURNS TO EYES OR SKIN

Read and understand the safety information in Regular Cleaning *(see page 112)* before attempting this procedure.

Failure to follow these instructions will result in death or serious injury.

⚠ CAUTION

OVERTORQUE AND LOOSE HARDWARE

- Do not exert more than 0.6 N•m (5.3 lb-in) of torque when tightening the screws inserted into plastic parts. Tightening these screws with excessive force can damage the plastic casing of the iDisplay 15'' keyboard.
- When installing or removing screws, be careful that they do not fall inside the iDisplay 15'' keyboard unit's chassis.

Failure to follow these instructions can result in injury or equipment damage.

⚠ CAUTION

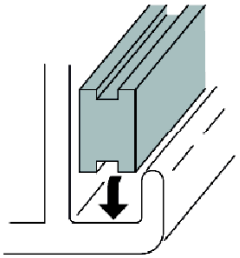
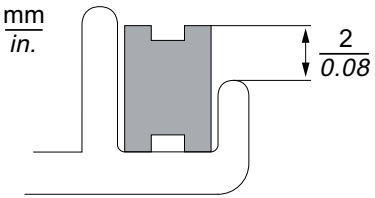
LOSS OF SEAL

Read and understand the safety information in Regular Cleaning *(see page 112)* before attempting this procedure.

Failure to follow these instructions can result in injury or equipment damage.

Installing a Replacement Gasket

The following table describes how to replace the installation gasket:

Step	Action
1	Shut down Windows in an orderly fashion and remove all power from the device.
2	Place the unit on a clean, level surface with the display facing downwards. If necessary, place a soft, non-abrasive pad on the surface before placing the unit.
3	Remove the old gasket from the unit.
4	Attach the new gasket ensuring that the gasket's grooved sides are vertical. Be careful that the gasket's seam is not inserted into any of the corners of the unit as this may lead to tearing of the gasket. 
5	Check that the gasket is correctly attached to the unit. The upper surface of the gasket should evenly protrude approximately 2 mm (0.08 in) out of the groove. 
6	Replace the iDisplay unit on its mounting and reconnect the power.

Maintenance Checks

Introduction

To keep your iDisplay unit in best condition, check the following points regularly:

- iDisplay Operating Environment
- Electrical Specifications
- Related Items

iDisplay Operating Environment

- Is the operating temperature within the allowable range (0°C to 50°C) (32°F to 122°F)?
- Is the operating humidity within the specified range (10%RH to 90%RH), dry bulb temperature of 39°C (102°F) or less?
- Is the operating atmosphere free of corrosive gases?

Electrical Specifications

Is the input voltage appropriate (85 Vac to 264 Vac)?

Related Items

- Are all power cords and cables connected properly? Have any become loose?
- Are all mounting brackets holding the unit securely?
- Are there any scratches or traces of dirt on the installation gasket?

Troubleshooting

12

Overview

This chapter describes how to locate and resolve anomalies with the iDisplay 15'' keyboard unit.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Troubleshooting Checklists	122
System Messages	126

Troubleshooting Checklists

Troubleshooting Checklists

This section explains how to find and resolve anomalies with the iDisplay unit. The iDisplay can be connected to a wide range of devices, including a host (PLC), however this manual will not discuss every possible device or context. For problems not directly related to the iDisplay unit, refer to that device's manual.

The main anomalies that can occur during usage of the iDisplay are:

- The Touch Panel display is blank.
- The Touch Panel does not respond.
- Connected devices cannot be used.

When it occurs, be sure to first read each checklist item and follow the instructions given. If this does not solve the problem, please contact your local iDisplay distributor.

When a hardware or software anomaly cannot be solved, please contact the distributor where you purchased the iDisplay unit.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Remove all power from the device before removing any covers or elements of the system, and prior to installing or removing any accessories, hardware, or cables.
- Unplug the power cable from both the iDisplay and the power supply.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace and secure all covers or elements of the system before applying power to the unit.
- Use only the specified voltage when operating the iDisplay 15'' keyboard. This unit is designed to use 100...240 Vac input.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

EXPLOSION HAZARD

- Always confirm the UL 1604 hazardous location rating of your device before installing or using it in a hazardous location.
- To apply or remove the supply power from a iDisplay 15'' keyboard device installed in a Class I, Division 2 hazardous location, you must either:
  - Use a switch located outside the hazardous environment, or;
  - Use a switch certified for Class I, Division 1 operation inside the hazardous area.
- Substitution of components may impair suitability for Class I, Division 2.
- Do not connect or disconnect any cable or wire while the circuit is live unless the area is known to be free of ignitable concentrations of vapors, gases, and other flammable or combustible materials. This applies to all connections including power, ground, serial, parallel, and network connections.
- Never use unshielded / ungrounded cables in hazardous locations.
- Use only non-incendiary USB devices as described in Control Drawing of the USB outlet (See *Control Drawing of the USB outlet on the Magelis iDisplay 15'' keyboard, page 87*).
- When enclosed, keep enclosure doors and openings closed at all times to avoid the accumulation of foreign matter inside the workstation.

Failure to follow these instructions will result in death or serious injury.

No Display

The table below suggests actions to take if the iDisplay unit's display is blank or if the screen turns itself off:

Step	Check/Operation	Solution
1	Does the backlight light up?	● If No, follow steps 2 to 5 ● If Yes, follow steps 6 to 10 If none, contact your local distributor.
2	Is the unit using the correct power voltage?	If not, connect the appropriate voltage. See *Electrical Characteristics, page 44*
3	Turn OFF the power switch.	
4	Is the power supply cable correctly connected to the unit?	If not, connect the power cable correctly. See *Connecting the Power Supply, page 82*
5	Is the panel still blank after the previous steps?	If yes, contact your local Schneider distributor.
6	Is the PC operating?	If not, start the PC.
7	Are the iDisplay output settings the same as the PC's frequency and resolution?	If not, set the iDisplay output settings to match the PC's frequency and resolution.
8	Is the RGB cable/DVI-D cable connected correctly?	If not, connect the RGB cable/DVI-D cable correctly. See *Connecting the RGB, DVI-D, and 232C Cable, page 89*
9	Does the screen display correctly?	If not, adjust the screen display parameters. See *Running the OSD, page 98*
10	Is the panel still blank after the previous steps?	If yes, contact your local Schneider distributor.

Touch Panel Does Not Respond

If the touch panel does not react, or its reaction is very slow after it is pressed, the table below proposes some solutions:

Step	Check/Operation	Solution
1	Is the Touch Panel Driver installed in the PC (host)?	If not, install the Touch Panel Driver. See the Touch Panel drivers CD.
2	Is the Touch Panel Driver set correctly?	If not, set the Touch Panel Driver correctly. See the Touch Panel drivers CD.
3	Is the Slide Switch correctly set for the input interface?	If not, set the Slide Switch correctly. See *Slide Switch Operation, page 96*
4	Is the USB cable connected correctly?	If not, connect the USB cable correctly. See *Connecting the USB Cable Strap, page 86*
5	Does the Touch Panel still not respond?	If yes, contact your local Schneider distributor.

Keypad Outputs Incorrect Characters

If the keypad outputs characters that are different from what you intended, the table below proposes some solutions:

Step	Check/Operation	Solution
1	Do you want to input text using Alpha mode?	If yes, press the function/alpha key until the LED turns ON. If not, press the function/alpha key until the LED turns OFF.
2	When you input text with the Keypad, is the text output different from the text label?	If yes, check to see that the keyboard layout is set to US keyboard layout.
3	Do you want to input text in a language other than English?	If yes, change the keyboard layout to the language to be input.

System Messages

Introduction

A message appears if a problem occurs in the iDisplay unit during RUN mode.

System Message List

The following table lists possible messages:

Message	Problem	Solution
Out of range 1 to 4	A signal timing value that is not compatible with the iDisplay unit has been entered.	Set the iDisplay Output settings to match the PC's frequency and resolution. See *RS-232C and USB Interface Specifications, page 37*
	A value for the dot clock which exceeds the iDisplay unit's usable timing range has been entered.	
	A resolution that is not compatible with the iDisplay unit has been set.	
No Signal	The Windows-compatible PC's power has not been turned ON.	Turn on the Windows-compatible PC's power.
	The Windows-compatible PC has not been correctly connected to the iDisplay unit.	Connect the RGB cable/DVI-D cable correctly.
	The input I/F and the image input signal type are not the same.	Adjust the screen display parameters. See *Running the OSD, page 98*

Accessories

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Accessories

Accessories for iDisplay

The accessories available as options for the iDisplay 15’’ keyboard are shown below:

Description	Reference
Maintenance kit	MPCYK50MNTKIT
Protective film	MPCYK50SPSKIT

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